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# THE AUTOMOBILE

## QUAKER CITY'S SHOW OPENS AUSPICIOUSLY

Third Regiment Armory, Where the Philadelphia Show Is in Progress

PHILADELPHIA, Jan. 15—The ninth annual show of the Automobile Trade Association of Philadelphia, in the Third Regiment Armory, was declared open to the public at 8 o'clock this evening without any ceremonies. The first bar of the overture by the Third Regiment Band was the only signal. At the opening hour the aisles were crowded uncomfortably; an hour later progress at a rate faster than a snail-like crawl was impossible. It was the biggest opening night in the history of the Quaker City's automobile shows, and this despite the fact that the present show building is considerably smaller than some in which former shows have been held. "Evening clothes" were numerous, and Fashion seems to have set the stamp of approval on this annually recurring winter fixture.

Heavy snowstorms on Thursday and Friday delayed the arrival of several of the out-of-town exhibits; others are to come entire from the Madison Square Garden show in New York. Monday midday, however, will see the cars assigned to the first week of the show all in place; after that hour General Manager Beck says that no cars shall come in or go out—they are there to stay till Saturday night, when there will be a general revamping of the floor-space to make room for the second week's contingent of exhibits.

At 4 o'clock this afternoon it would have taken an optimist of the purest ray serene to predict anything better than 50 per cent of completeness in the preparations at the opening hour. But the committee, with Manager Beck at its head and assisted by members of the association, began a systematic clearing up of the floor, and by side-stepping supper they were enabled to get the building in fair shape for the opening. Save for a few bare spots here and there, where exhibits had failed to arrive, the general effect was that of a complete exhibition.

The crowd was so dense that no particular portions of the exhibition could be selected as centres of interest. Those exhibits, however, which included torpedo bodies among their models seemed to be especially interesting to the visitors, and the attendants at those booths were kept busy all the evening explaining the beauties of this latest novelty. Of the forty separate makers of cars exhibited at the thirty booths, twenty-eight are of the four-cylinder variety, the six-cylinder type claiming twelve representatives. The only two-cylinder motors to be exhibited are in-

stalled in the Autocar truck, which will be shown during the second week.

The Show Committee is composed of J. A. Wister, chairman; James L. Gibney, W. J. Foss and General Manager J. Henry Beck, with Richard H. Kain as publicity man. All former efforts of local promoters in striving after superior decorative effects have been outclassed by the splendid combination worked out by Decorator Charles M. Simpson. The main color scheme is blue and white. Overhead and along the front and side walls this combination prevails, the panels on the walls being punctuated at intervals by Corinthian columns of pure white extending to the roof, the ugly beams and braces of which are hidden from view by graceful festoons of blue and white bunting, the former representing heaven's blue vault, the white the fleecy clouds.

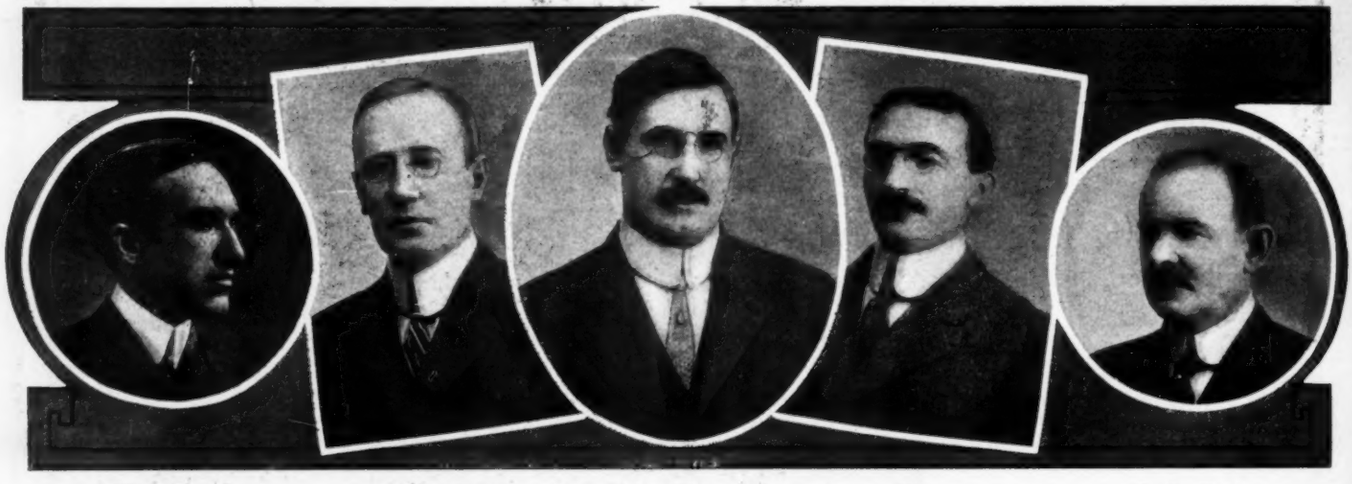
The entire back wall of the armory is taken up by a startlingly original and effective sunburst, the rays of which are made up of scarlet, orange, yellow and white bunting, the sun being represented by a huge gilt ball on which is spread the simple legend "1910."

The three aisles are marked on either side by rows of Carrara marble columns, each surmounted by a Swiss chalet in miniature and filled with growing plants. Each pair of columns is connected by a graceful trellised arch extending over the aisle, the intertwined flowers in which help along the outdoor-garden effect which the designer had in mind. Box hedges separate the various exhibitors' spaces, which are marked by dark green rustic signboards set at an angle on 12-foot uprights of the same color. The lettering on the boards is silver-white, and contrasts well with the dark background. The carpeting of dark green carries out the lawn idea, the outdoor effect being still further added to by the dark green rustic benches and chairs at each booth.

The lighting is especially well done. Thirty big arcs, the same number of Welsbach clusters, with countless long festoons of white electric bulbs, setting for the beautiful decorative effects to excellent advantage.

To-night's opening saw several of the exhibits incomplete, some of the cars to be displayed being at the Madison Square Garden show, and will not be installed until Sunday afternoon. When the doors are thrown open at noon on Monday there will have been crowded into the armory 123 complete cars and 21 chasses. On the opening night the crowded condition of the majority of the displays, with the crowd surging through the eight-foot aisles and encroaching onto the working ground of the conversation artists connected with each booth, again brought forth the wail, "When will Philadelphia have a convention hall of suitable size to house an affair of this kind?"

The decision to run the show for two weeks was actually forced on the committee by their inability to secure an exhibition building anywhere near the dimensions required for the annually increasing size of the show. The Second Regiment Armory, the largest building of the kind in the city, could not be engaged this year owing to the structure having been taken over by the State of Pennsylvania, a law of the commonwealth preventing the renting of any of its property for any purpose whatever. The First Regiment's quarters, although ideally located, was out of the question, being entirely too small. This process of elimination left the Third Regiment Armory as the only available building in the city. The main drill floor measures but 172 x 144 feet. With less than fifteen thousand square feet at their disposal, including aisle space, and with more would-be exhibitors of pleasure cars alone than could be accommodated, the show committee hurriedly decided to run the exhibition for two weeks, the first to be devoted to pleasure cars alone, the second to commercial vehicles, electrics, motorcycles and accessories. Even this arrangement did not provide sufficient space for the pleasure car exhibitors, and a dozen or more of them will be relegated to the second week. In assigning the space, of course, the preference was given to the members of the Philadelphia Automobile Trade Association, who are bearing the brunt and burdens of the management of the exhibition. Most of the exhibitors who failed to get in with the first week's elect have taken the situation philosophically, being well aware of the impossibility of satisfying everybody as to space and location.



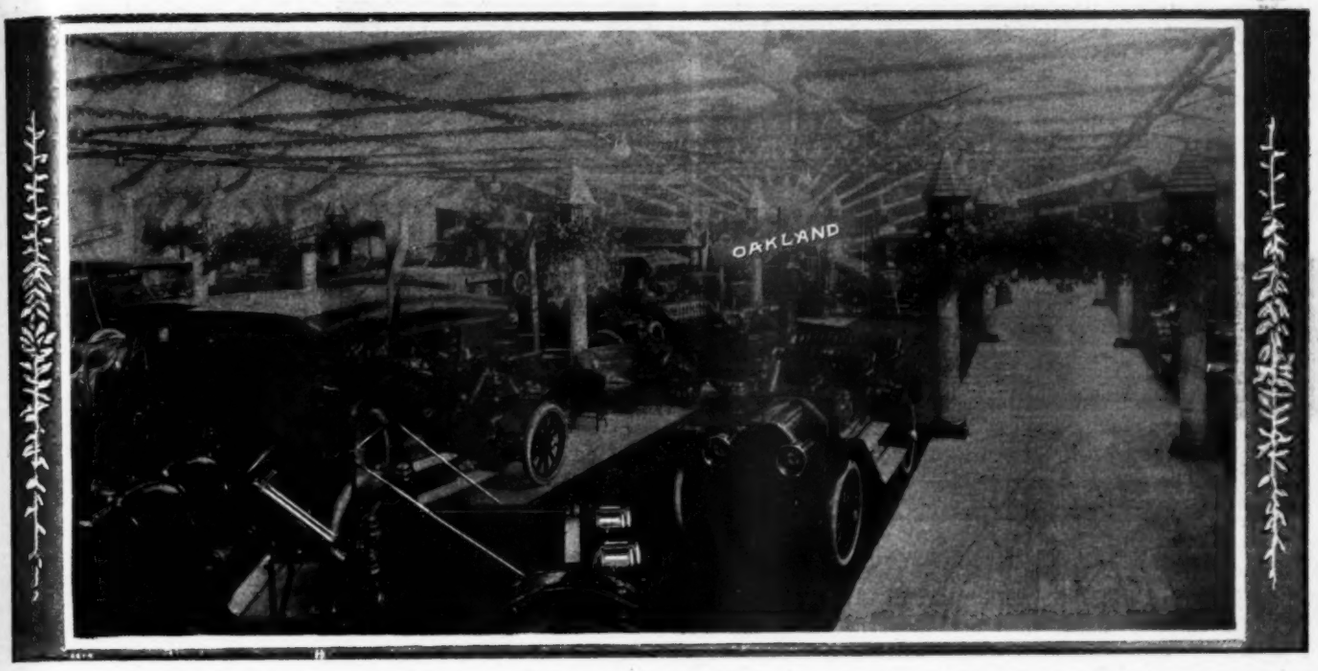
W. J. Foss J. H. Beck J. A. Wister J. L. Gibney R. H. Kain

**The Local Show Committee That Is Making the Exhibition a Success**

Suspended from the armory roof is a new Herring-Curtiss aeroplane, natty in its bright varnish, looking fit for a dash through the bunting sky and clouds above it. So far this constitutes the only item in the "auxiliary aero exhibit," but it is understood that several additions will be made to this branch of the show before the end of the first week.

The management has made a hit by setting apart certain portions of the first balcony for the use of the various local clubs—the Quaker City, Philadelphia, Germantown, Century, and Delaware County. These were thronged throughout the opening night by the club members and their ladies—the balcony is a famous vantage-point from which to look down upon the crowds below and get a bird's-eye view of the whole scene. The "private boxes," as it were, will be devoted solely to the use of the members and friends of the clubs mentioned during the two weeks of the show.

Aside from the size, there is nothing to distinguish one booth from another except the wording on the signs. Uniformity is rigidly preserved, and no extraneous decorations have been allowed. Some of the displays are of a magnitude worthy of a national show. The Packard, Chadwick, Peerless and Cadillac, Locomobile, Olds and Oakland, Pullman, Elmore, White, Winton, Stoddard-Dayton, Columbia and Reo, Premier and Bergdoll dis-



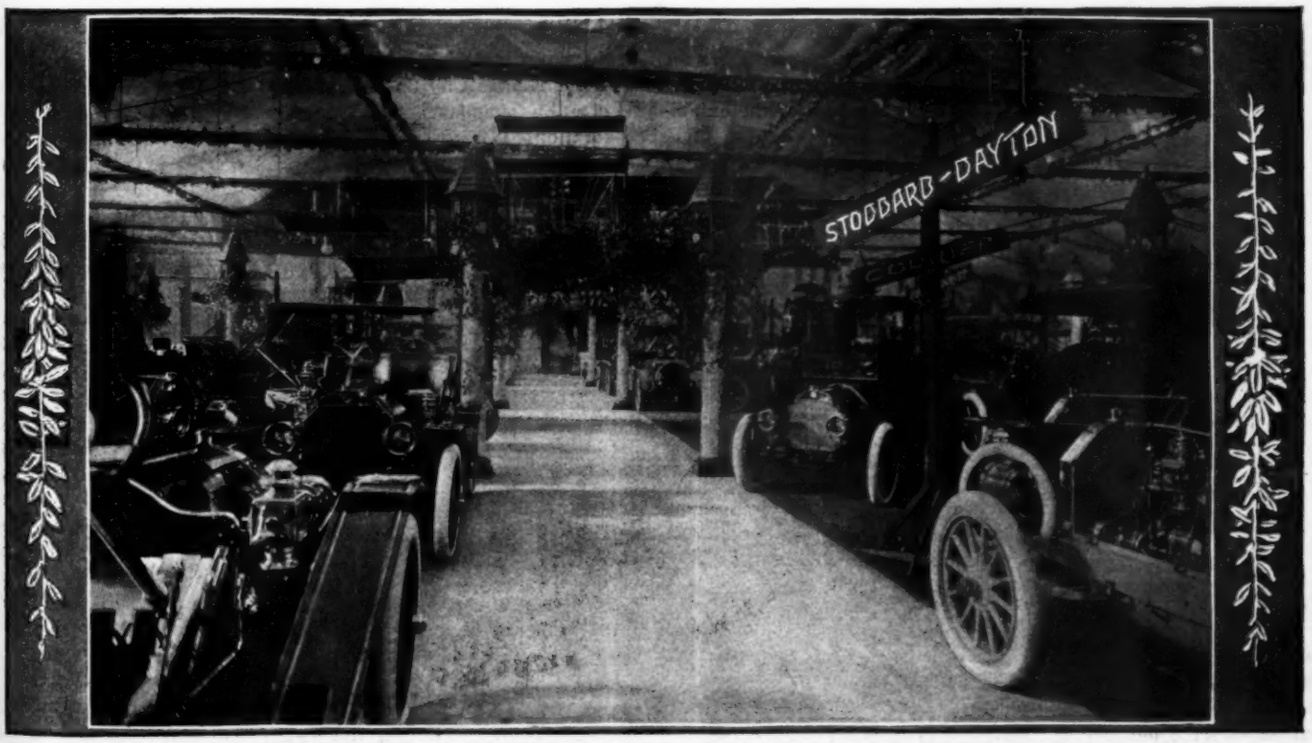

**Auditorium Where the Exhibits Are Tastefully Arranged and the Decorations Are Harmonious in Effectiveness**

plays occupy space to the limit allowed by the committee. In point of the number of cars exhibited the Ford display is especially prominent with two touring cars, a T-roadster, a town car, a landaulet and a coupé, all model T's. The Olds-Oakland display includes four each of the Oldsmobile and the Oakland—two touring cars, roadster and landaulet of the former and two touring and the same number of roadster models of the latter.

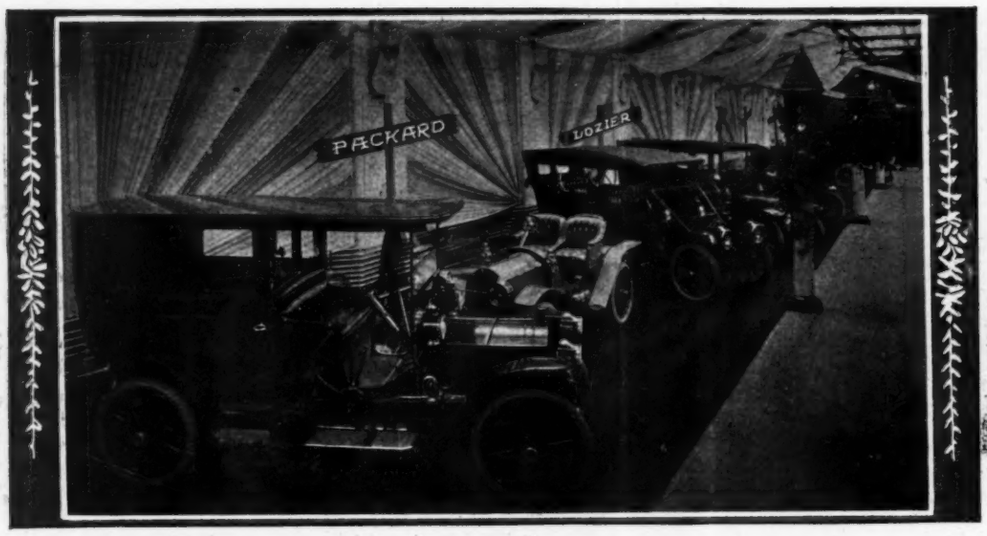
Another most comprehensive display is that of the Maxwell-Briscoe Company, no less than six cars being crowded into the rather limited space—Model E and Model G touring cars, three Model Q's (touring car, runabout and the famous "Sportsman"), and the Model AA, or "Baby Maxwell."

Torpedo bodies are much in evidence—the Winton and White and the Studebaker-Garford "Gunboat" coming especially under the observation of the crowds. The White gasolines form a particularly interesting portion of the company's exhibit, with "Billy" Taxis and his brother Ed among the "con" artists who hold forth at the sign of the famous steamer. The Winton exhibit—all sizes, of course—is one of the finest under the armory roof, and includes, besides the torpedo body, a touring car, a toy tonneau and a roadster.

The Thomas, Chadwick, Lozier, Peerless-Cadillac, Overland-Marion, Premier, Royal Tourist and Stevens-Duryea exhibits all have four models on exhibition, most of them in addition having




**A Glance Down One of the Aisles Shows Neat Arrangement and Plenty of Room for Customers to Inspect the Cars**




Some Representative Exhibits That Appealed to the Photographer's Art

a highly polished chassis also displayed. It is rather unfortunate that the exhibitors should have been compelled to do so much crowding in order to set forth even a moderately comprehensive exhibit of their goods. But "needs must when the devil drives," and all hands are doing the best they can under the circumstances.

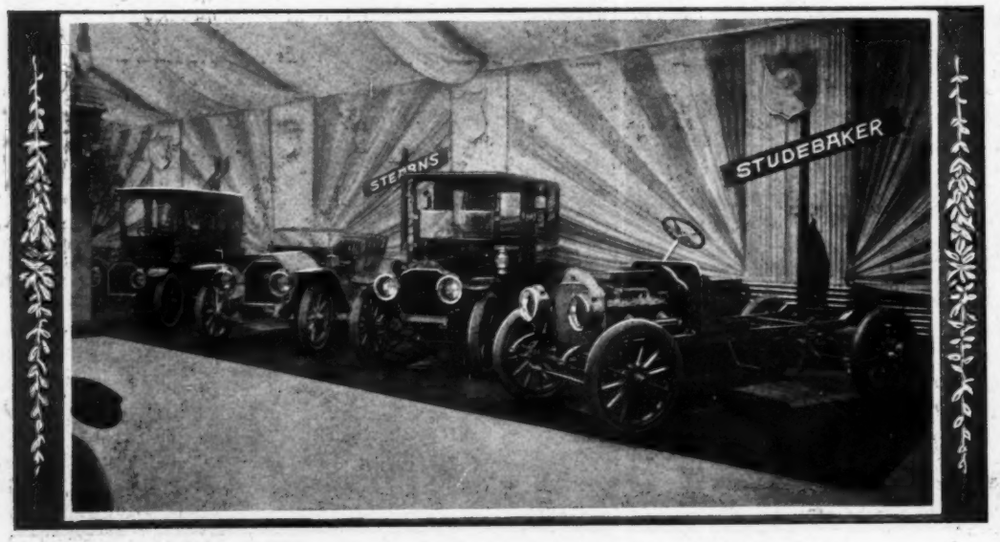
That the show will result in business has been demonstrated even thus early. Several cars were sold outright to-night, and despite the crowds a vast amount of missionary work was done. Out-of-town agents and subagents are already coming into town, for Philadelphia has become quite a distributing point for a big territory during the past twelvemonth, and concerns like the Studebaker, Ford, Locomobile and Maxwell branches are making big preparations to handle the up-State, New Jersey and nearby Southern visitors when they begin to descend in force.

The Autocar Company, as one of the members of the local Trade Association and entitled to first-week representation, selected the second week to show its pleasure cars, which goes to verify the rumor that that concern proposes to especially push its commercial vehicles during the coming year.

Studebaker Bros. Company have so much to show that they have secured space for both weeks, and will be represented in the pleasure class during the entire show, in addition to a comprehensive display of commercial cars in the last half of the exhibition.

The Collings Carriage Company, a newcomer in the local field, will be prominent during the second week with a three-section exhibit—the Rainier in the pleasure class, the Waverley in the electric section and the Crane & Breed in the commercial car section. Other newcomers to the local field who will exhibit during the second week will be the Otto, by the Otto Gas Engine Works; the Springfield, by the Springfield Motor Car Co., and the Empire, by the Motor Supplies Co.

"Home shows" will be all the rage along Gasoline Row during the next two weeks. The "first-weekers" at the show will hold forth at their several Row establishments during the last half of the exhibition; the second-week contingent will have "open-house" throughout the first week. The "rank outsiders"—those who could not get in during the first week and wouldn't take space for the second—will put in a whole fortnight receiving guests at their branch houses and agencies. Among the latter are the Theobald Motor Car Company, Acme; Franklin Motor Car Company, Franklin; J. M. Quinby & Company, Pennsylvania, Simplex and Isotta; Chalmers-Hipple Company, Chalmers-Detroit; Buick Motor Car Company, Buick; Oxford Automobile Company, Gaeth and Brush; Philadelphia Automobile Company, Apperson; Selden Motor Car Company of Pennsylvania; Selden; Palmer & Singer Company, Palmer-Singer; Jackson Motor Car Company, Jackson; Hoopes Motor Company, Crawford and Rambler; Continental Motor Car Company, Speedwell and Parry, and Penn Automobile Company, Paterson "30." These, if combined, could have made a respectable show in themselves, and indicate what the promoters could have done had there been in Philadelphia a building more nearly adequate to the requirements of a first-class show.




Another View That Caught the Artistic Eye of the Man With the Camera

## KANSAS CITY OPENS FIRST OF TWO SHOWS

KANSAS CITY, Mo., Jan. 18—The first of the two shows scheduled for Kansas City this season opened last night in Convention Hall. An abundance of flowers entered into the scheme of decoration. When the visitors passed through the south entrance the first thing that struck the eye was the double-decked tea garden on the far side of the auditorium, festooned with posies and electric lights. Around the sides the empty balcony seats were screened off with large panels depicting Western scenes, some of them reproductions of the work of the late Frederick Remington. In front of the first terrace of the tea garden is a rock embankment; the second level is a pergola with the trellis green with Southern smilax. A hedge fence of the same plant runs down the center of the hall to separate the exhibits. The show is conducted by the Motor Car Trade Association, with the following committee in charge: W. S. Hathaway, chairman; E. P. Moriarity, Fletcher Cowherd, Jr., C. C. Meade, W. M. McGee, R. H. Collins and J. F. Witwer.

# CHICAGO'S SHOW ATTRACTS NORTHWESTERN LUMBERMEN

CHICAGO, Jan. 17—In view of the extensive purchases of automobiles by backwoodsmen from Alaska, Great Bear Lake, Saskatchewan and contiguous parts, the management of the Chicago show has decided that special care should be taken to make the Coliseum and the Armory seem homelike to these wanderers from the tall timber. This is the real secret of the setting of forest trees which has been planned for the show. Additional details can now be made public of the arrangements for the entertainment of the Saskatchewanderers.

When the lumberman in search of an auto strides into the Coliseum entrance, his nostrils will be greeted by an aromatic odor which will recall to his mind the tall pines of his homeland. Under this magic influence each visitor from the Northwest is expected to buy at least three touring cars and a limousine. The perfumery used was tested in one of Robert Edeson's Hudson Bay dramas, and one man in the audience was so affected that he tried to chop down a balcony column with his penknife. He was not a Presidential candidate.

Realizing that visitors from the fashionable North Side, whose only knowledge of the timber lands has been gleaned from Stewart Edward White's novels, may not be sufficiently inured to this strenuous influence, Manager Samuel A. Miles has provided a counter attraction in the Annex. Here the decorations will recall an old-fashioned rose garden. Fountains scattered among the chassis and the landaulets will spray rosewater, burdening the air with a sensuous perfume. No taint of brass or lubricating oil will jar the perfect harmony.

Still another class of visitors will be made to feel especially at home at the Armory, which, Manager Miles says, will be provided with a "rustic atmosphere." So far not a whiff of this has leaked out, and the scribes on Automobile Row can but speculate as to what product of the barnyard will be used to give the effect. Something startling is expected.

However, atmosphere alone will not be depended upon to produce the impression of varied settings. A number of real trees are to be imported for use in the Coliseum forest; the specifications call for eight trees sixty feet high, fifty feet spread and two feet in trunk diameter, and four trees twenty feet high, ten feet spread and one foot trunk diameter. These are to be brought from Wilmette in due season and disposed artistically around the floor. The exhibitors' spaces will be marked off with brick walls and iron fences, and the aisles will be lined with bay trees. The trees will also be surrounded by fences, and it will be strictly prohibited to carve hearts and initials on them.

The Annex will be fitted up with trellis-work and wire netting interwoven with foliage, and bay trees will be scattered around in great numbers. In the center of the Armory will be four pagodas, and divisions will be made by rustic fences with ornamental corner posts surmounted by vases and foliage.

"This will all cost money, and will involve a larger expenditure than ever before for decorations and atmosphere," says Manager Miles. "However, it is my ambition to give Chicago an exhibition and a setting that will rival anything ever offered. My estimates call for an outlay of over $75,000 in decorations alone."

## NATIONAL CAPITAL SHOW BEGINS SOON

WASHINGTON, D. C., Jan. 17—From present indications the automobile and aeronautical show to be given in Convention Hall during the week beginning January 24 will be the biggest trade display ever held in this city. Nearly every inch of space has been taken, and Manager B. R. Johnson is endeavoring to squeeze in a number of belated exhibitors.

A big feature of the show will be the display of aeroplanes and fittings, which will be under the direction of H. Chadwick Hunter. He has been very successful in securing exhibits for this department, and among them are several machines unfamiliar to the Washington public. The Warner Instrument Company will exhibit a Curtiss biplane equipped with a Warner anemometer. The Berliner monoplane, now nearing completion, will be given its initial tryout before the show opens. The Ormer, Smidley, Christmas and Smith aeroplanes, all local productions, will also be shown. The Government is to loan the committee a number of war balloons and kites, and there will also be a comprehensive display of engines and parts.

W. C. Long, chairman, has selected the following dealers as members of the show committee: John S. Larcombe, Jr., secretary; John R. Thomas, treasurer; C. W. Bender, William Jose, S. A. Luttrell, R. C. Wilson, A. G. Carter, C. E. Miller and L. D. Moore, Jr.

## INDIANAPOLIS WANTS A NATIONAL SHOW

INDIANAPOLIS, Jan. 17—A plan for a national automobile show to be held in this city next fall has been launched by Carl G. Fisher, president of the Indianapolis Motor Speedway Company. He suggests that the New York and Chicago shows be reduced to the rank of local affairs, leaving the Indianapolis exhibition the only national one. He further suggests that the show be held on the Speedway, with the exhibits under tents, and the use of the course free to all participants. The Indianapolis manufacturers and the promoters of the Speedway naturally like the idea, but it is doubtful if it will find much favor elsewhere.

## SPACE ALLOTMENTS FOR BALTIMORE SHOW

BALTIMORE, Jan. 17—The task of awarding the spaces for the second annual automobile show under the auspices of the Automobile Club of America at the Fifth Regiment Armory, February 22 to 26, has been completed. Thomas Young, chairman of the publicity committee, announces the following exhibitors:

Dixon C. Walker Auto Company, E-M-F, Flanders and Studebaker cars; Lambert Auto Company, Maxwell; E. L. Leinbach, Matheson; "Little Joe" Weisenfeld, Oakland and Reo; Motor Car Company, Stevens-Duryea; Boyd-Eastman Company, Apperson; F. W. Sandruck, Gaeth; Ford Auto Company, Ford; Palace Motor Car Company, Kline Kar; White Automobile Company, White, Neely and Ensor, Alco; Griffin Garage, Knox; Viola Oil Company, M. Denton, Bowser tanks; Mar-Del Mobile Company, Packard and Franklin; Shaffer Motor Car Company, Pullman; Standard Oil Company, Mount Vernon Motor Car Company, Autocar; Zell Motor Car Company, Hudson, Peerless, and Chalmers-Detroit; Auto Outing Company, Palmer-Singer, Haynes and Buick; Walter Scott, Crawford; Baltimore Buggy Top Company, J. G. B. Davy & Company, accessories; Auto Supply Company, accessories; Winton Motor Carriage Company, Winton; General Auto Company, Parry; Foss-Hughes Company, Pierce-Arrow; Standard Motor Car Company, Cadillac and Oldsmobile; Charles S. Houghton, Overland.

## FURNITURE CITY WILL HAVE A SHOW

GRAND RAPIDS, Mich., Jan. 17—After trying in vain for several years to develop enough interest, this city has finally decided to have an automobile show, to be held February 17, 18 and 19. Twenty thousand feet of floor space will be provided in one of the big furniture exhibition buildings, and fifty-six exhibitors have already engaged space. Being held just after the Chicago and Detroit shows, it is believed the local exhibition will attract many of their features. Grand Rapids is the center of a large territory of automobile users. A. H. Vandenburg is chairman of the committee in charge of the show.

## BUFFALO WILL HAVE MOTORBOAT SHOW

BUFFALO, N. Y., Jan. 17—The Third Annual Power Boat and Sportsmen's Show will be held here March 21 to 30 in Convention Hall. The decorations contemplate the conversion of the entire hall into a Japanese garden. D. H. Lewis is the manager.

# THE "EVERITT 30" for 1910

Fig. 1—Everitt "thirty" touring car, presenting a long wheelbase, large diameter wheels, roomy tonneau, and a sense of comfort

ADVANCE is made in the art just as designers forge ahead in the work under their direction, and evolutionary methods govern. True, automobile designing has its many angles, but when the situation is fittingly canvassed there are but few schools of design, and deviations in point of detail within schools does not result in types. When a new school of design is instituted, and it has had time to prove its ability to breast the waves, it is fitting to discuss its details and note its advantages.

The Everitt automobile, made by the Metzger Motor Car Company, Detroit, Michigan, is readily separated out into a type, particularly if the motor is examined, nor does it take more than half an eye to note the reason for the distinction. The general appearance of the Everitt automobile will be apparent by noting the title illustration, which is reduced from a photograph of the car. The particular mechanical construction which greets the eye of the keen observer, and which differs very materially from other schools of design, lies in the motor.

### CYLINDERS AND UPPER HALF AS A UNIT

The motor, which is given a 30-horsepower rating by the company, has four cylinders, 4 x 4 3-4 inches bore and stroke, respectively, and according to the rating the power delivered is 4.4 horsepower more than the A. L. A. M. rating, which is 25.6 horsepower. Referring to Fig. 2, the four cylinders C1 are en bloc and integral with the upper half of the case C2. It is this part of the design which gives to the Everitt its class distinction, but there are other features to be noted, which in a considerable measure must account for the fine performance of the power plant.

There is a great difference between atomized liquid gasoline and a vapor of the same; vapor is formed during a change in the state of aggregation of the liquid (from liquid to vapor), and during this change heat units must be added to the liquid—it must be raised to its boiling point and enough energy must be taken up by it to equal the latent heat of evaporation. In this motor, rather than detract from the power by having the liquid (in the atomized state) changed to a vapor in the combustion chamber, the construction is such that exhaust products of combustion are utilized for the purpose, and the gain is a double one; exhaust heat is recovered and the energy cost of vaporization is not at the expense of the ability of the mixture as it enters the cylinders.

This considerable advantage, it is claimed, is brought about in the matter as follows: The intake M1 is cast integral with the cylinders, and the exhaust transfer ports, being also in integral relation with an opening, E1, have but a separating wall between the intake and the exhaust for a considerable distance, enables the heat units in the exhaust to transfer to the mixture in the intake, with the result that the atomized liquid gasoline is changed to a true vapor before it enters the cylinders at all.

There is still another gain, so it is said, in this performance; if liquid gasoline is allowed to enter the combustion chamber, the action will be that of a coke oven, and carbon will coke out, thus forming a carbon crust over the surfaces of the cylinders, and, as is now well appreciated, this crust will act as a shield, preventing the cooling water in the jacket from performing its function, and pre-ignition will ultimately be the phenomenon that the unlucky autoist will have to cope with.

By vaporizing the gasoline before it is allowed to enter the combustion chamber,

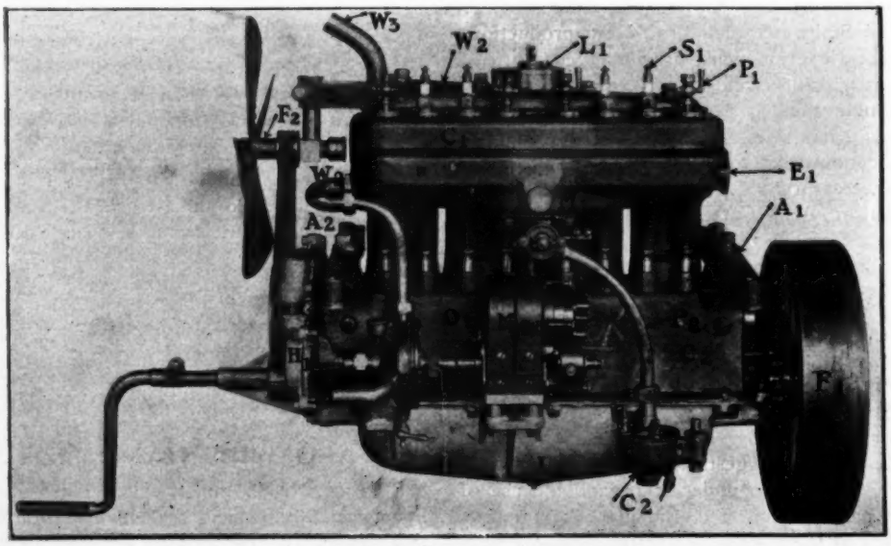



Fig. 2—Power plant, showing a distinct type of motor with cylinders and case integral, and accessories in convenient relation

then, the following gains may be noted on the right side of the ledger:

(A) Heat will not have to be applied to the gasoline after it enters the cylinders to vaporize it.

(B) Coking out will be aborted.

(C) Homogeneousness of the mixture will be assured.

(D) Combustion will be more complete.

(E) The mean effective pressure will be higher.

(F) Heat will be recovered from the exhaust and turned to good account.

(G) The power delivered will be on a higher level.

There are other considerations to be given due weight; homogeneousness of the mixture is the dream of the pure theorist; it is extremely difficult to realize, and yet this quality is absolutely essential if a motor is to deliver power in proportion to speed. It is one thing to design a motor which will have a certain maximum power rating, but it is quite another point to so design a motor which it will deliver power in proportion to speed over a wide range of action.

If the power does not hold out as the speed changes, "stalling" will be easy, simply because the power will not be available in proportion under changing conditions of speed of the car on the road. It is the road performance of the automobile that is of the greatest importance, and Chief Engineer Kelley of the Metzger Motor Car Company holds to the idea that this is the point of moment. These features of motor design, then, rather than as differences to be used as mere talking points, or to lower the cost of construction, are for the express purpose of increasing the power, to begin with, but, what is more to the point, to make the motor characteristic conform to the chassis requirement on the road under a wide variety of conditions.

As an indication of the furtherance of this prime idea, the flywheel F1 of the motor is designed to afford the greatest possible flywheel effect, with the understanding that this facility enables the designer to work a more capable compression, which is especially advantageous at high speed, and the increased flywheel effect makes it practicable to run the motor at very low speeds under the better conditions of compression which are desired for efficient high-speed performance.

The carbureter C2 is placed low enough to allow of a gravity feed, which makes for simplicity and assured action, but there is still another point in this design which should not be overlooked. The pipe P2, which connects the carbureter with the transfer port in the cylinder casting, is relatively small, it being the purpose to prevent popping back. It is desired to thus prevent this popping back when the valves are timed for the best result, as when both the inlet and exhaust valves are open at one time (overlapped) for a part of the stroke. Popping back will not transpire under the conditions here imposed, for the simple reason that the pipe is so regulated as to its area that the speed of the mixture on its way to the cylinders is higher than the speed of flame propagation in the molecular structure of the mixture.

### ACCESSORIES TO THE MOTOR WELL PLACED

The magneto M2 is flexibly mounted, an Oldham joint, O1, being placed between it and the pump shaft. This makes it possible to remove and inspect the magneto, even on the road, and to replace the same with no chance of trouble of any sort. The pump, W1, for circulating the cooling water is of the centrifugal type, is located just back of the housing for the half-time gears, and is driven by a pinion which is inclosed in the housing H1, which meshes with a gear in the half-time system. This pump is packed at both ends of the protruding shaft, and is fastened down to a bracket which extends out from the crankcase.

The timer, for use with the coil and battery system of auxiliary ignition, is so situated as to be readily accessible, and the spark-plugs, S1, are over the inlet valves of the motor, this from experience proving to be the best place. The fan F2 in front is adjustably placed, and the arm B1 is an extension of the water cover W2, which passes over the four cylinders, from which the water pipe W3 passes up and joins with the radiator in front. The supporting arms, A1 and A2, are forged and separately mounted; they are held in place by security bolts of undoubted competence, and the plan is one that has been accepted by designers of recognized ability as advantageous in many ways. The starting crank is capable, and the end-bearing of the same is supported by a housing which extends out from the crankcase.

### UNIT SYSTEM OF DESIGN IN EVIDENCE

Fig. 3 of the live rear axle shows the transmission system connected thereto, and, considering the power plant (Fig. 2) as making up the remaining portion of the mechanical equipment, it is self-evident that the car is composed of the least number of units possible to employ, and that they are so related to each other that there is entire accord between them, brought about by the proper utilization of universal joints.

The torsion tube T1 engages at its upper end with a yoke, Y1, which links to a cross-member of the chassis frame through a suitable mate, and the diagonal loading of the live rear axle is

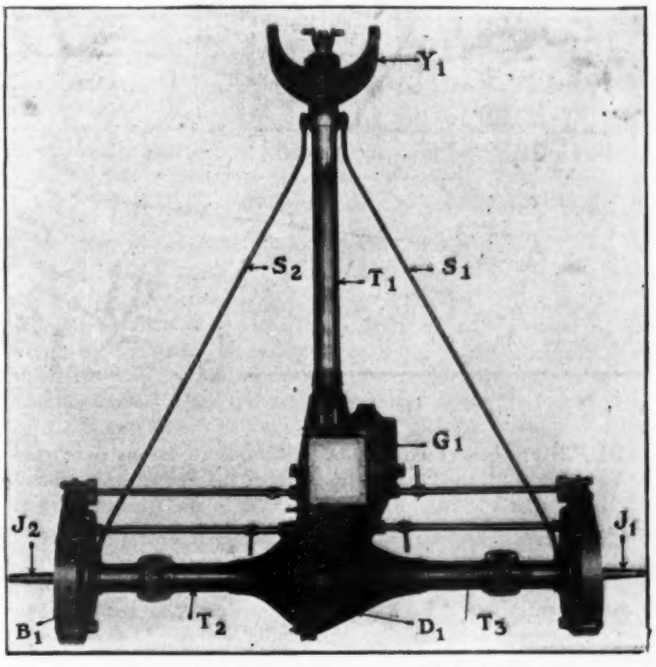



Fig. 3—Live rear axle, with integral transmission, diagonal stays, and torsion tube with universal attachment

cared for by the diagonal stays S1 and T2, so that the tubes of the live rear axle, T2 and T3, are not required to take more than the responsibility which is normal to an axle.

The transmission G1 is compact, does not pick up the ground when the going is bad, and the three speeds ahead and reverse are selective. The brake-control members, as shown, are straight and efficient, and the brakes B1, on steel drums, are efficient and adequate for every possible need, the emergency set being especially designed to take the work if the occasion demands.

The axle tubes, T2 and T3, are of good diameter, made of drawn steel tubing of selected grades, and the differential shafts, J1 and J2, are of specification steel, with a taper-fit for the wheels. This fit has the virtue of holding under all conditions of service, and if it is necessary to remove and replace the wheels, it is possible to do so without destroying the good relation which obtains from the start.

The price of this automobile is $1,350 ready for touring; wheelbase is 110 inches, and the tire equipment is 34 x 3 1-2 inches front and rear. The weight is 2,200 pounds, which, considering the tire equipment used, is a good sign of excellence of road performance at a low cost of tire upkeep. Lubrication is by splash, and grease cups are placed at all necessary points so that long life, as it is dictated by proper lubrication, is assured. Fits of the parts are carefully looked to and noise is aborted.

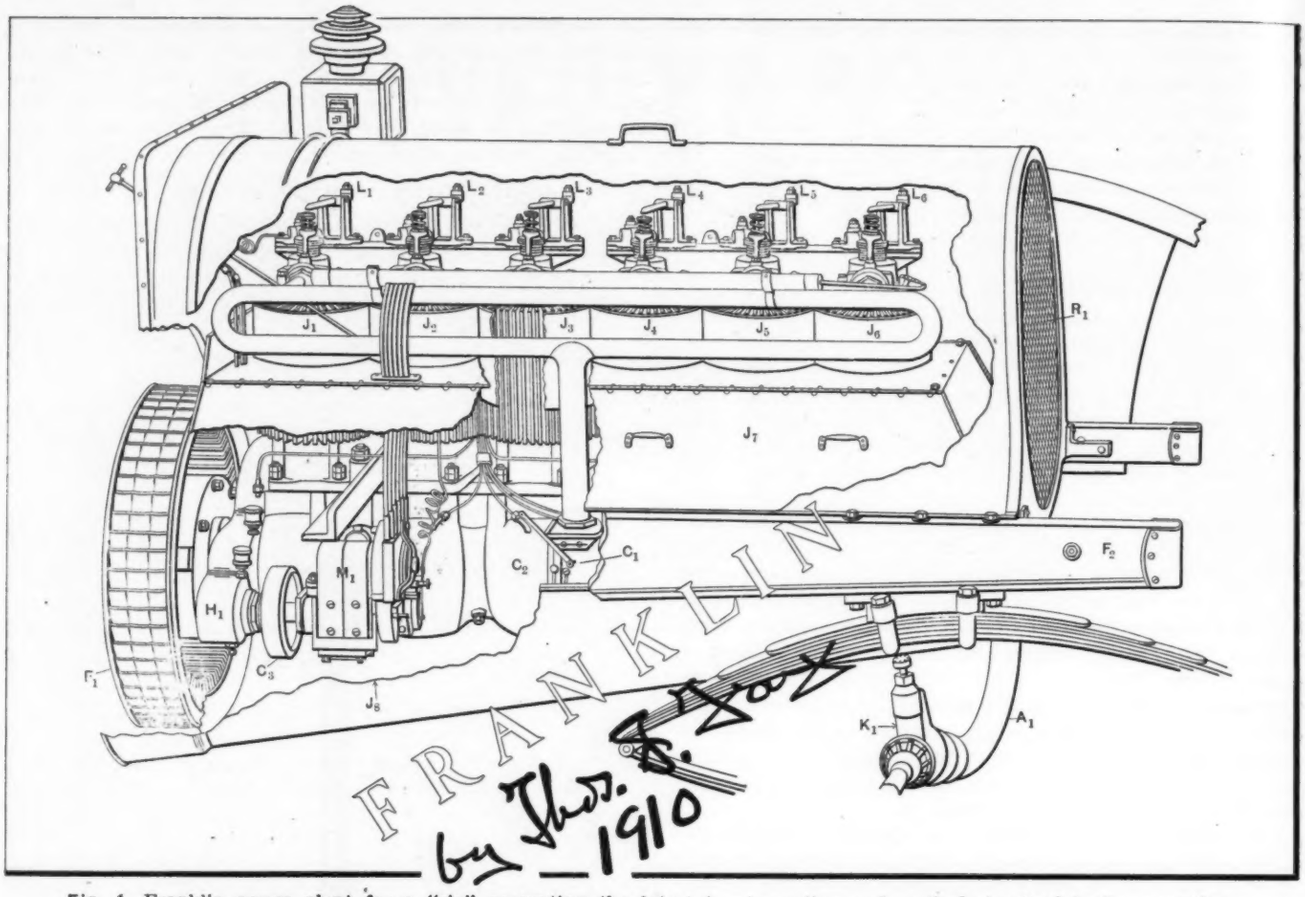



Fig. 1—Franklin power plant for a "six" presenting the latest in air cooling and methods involved in the execution

STRIDES are being made in all directions so far as automobiles are concerned, hence it will come as no surprise when it is stated that the new Franklin (which is the persistent exponent of air-cooling) is much different from the makes from the same company in former years. In the present Franklin power plant, while air is relied upon to accomplish the cooling, the difference shown is by way of a better means of accomplishing the purpose, according to the maker. Instead of relying upon the cooling effect of air drawn over the motor as a whole, with the chances of lack of equality of distribution, the air is transferred, positively, through ducts, and the ribbing on the cylinders of motor, instead of being horizontally around the girth, are in the vertical plane. In this way, since the air is forced to wipe over all the surfaces, each molecule of air is ladened with all the heat it can take away, and each cylinder is cooled exactly the same as the other.

### ASSEMBLY OF FRANKLIN AIR-COOLED MOTOR

With a view to delineating the working of the new Franklin system of air-cooling, Fig. 1 is offered, in which the valve motion is the same as formerly obtained, it controlling the Franklin type of concentric valves, and in this assembly the lifts are indicated in their correct relation as L1, L2, L3, L4, L5 and L6. Cooling, in this model, is by means of a current of air which is drawn in through the circular radiator front, R1, by the fan F1, on the periphery of the flywheel, and in view of the proper disposition of air conduits, J7 and J8, the amount of air which passes down around the exterior surfaces of the respective cylinders is fixed by the jacket housings J1, J2, J3, J4, J5 and J6.

The motor case, C2, is of the same shape as formerly obtained on Franklin motors, and the magneto M1 is shown on the right side, driven by means of a shaft with a coupling, C3, lying between it and the housing, H1, for the half-time gears, and a gear for driving the magneto meshes with a gear in the half-time train.

The chassis frame, F2, is of wood, laminated, as in former times, and full elliptic springs are used to take the work, while the front axle A1, as shown, is tubular, and the knuckle K1 conforms to the usual Franklin practice.

### AIR-COOLING BY THIS METHOD IS DIRECT

In order to more fully appreciate the directness of the method of cooling used in the Franklin, it will be to advantage to examine Fig. 2, in which (A) is the motor in section at right angles to the crankshaft, and (B) is an end view looking at the front of the motor. Referring to (A) the carbureter C1, is connected to the cylinder by the intake manifold I1, and the concentric valves, V1, are clearly shown in this section. The camshaft, C2, shows one of the cams, and the lift, L1, is of the design using a mushroom. In this section the lift shows the control of the auxiliary valve, V2, of the exhaust, which opens when the piston, P1, is nearing the bottom dwell point, and remains open until the piston ascends for a part of the up-stroke. It is claimed that this auxiliary valve serves as the outlet for over 70 per cent. of the spent products of combustion, and this, as a means of cooling, should not be lost sight of.

Considering (B) Fib. 2, the manner in which the air jacket, J1 (there being one for each cylinder), is fitted around the cylinder, is clearly depicted, and the air-box, the top plate P2, shows the upper line of the exhausting chamber, while the vertical ribs R show in the view, they being very thin, closely spaced around the cylinders and of sufficient area to accomplish the desired end.

### GENERAL ASSEMBLY OF CHASSIS AND POWER PLANT

How the chassis, as a whole, appears, is best appreciated by referring to Fig. 3 with the hood off, this being the 4-cylinder model, which differs from the six only in point of the number of cylinders used and such other changes as this situation indicates. The motor, M1, has its cylinders projecting up above the

air-box, B2, and, as the illustration depicts, the location of the motor is strictly in conformity with the most modern practice. The transmission, T1, is on the center line and connects with the live rear axle, A1, by the propeller shaft, P1, with a universal joint, U1, at its front end and a similar joint, U2, at the entrance of the housing, H1, of the live rear axle.

The brakes on the rear wheels are of great competence and the control is worked out in a manner to be commended, with the brake shaft, B1, far enough in front of the rear axle so that vertical motion of the frame does not interfere with the action of the brakes whether the tonneau is loaded or empty.

Among the other features of the car are nice steering details, the crossrod, C1, being straight, and to the rear of the axle, thus guarding it from damage when the car is in heavy going, as on a soft road, or if an obstruction projects up far enough to strike the axle.

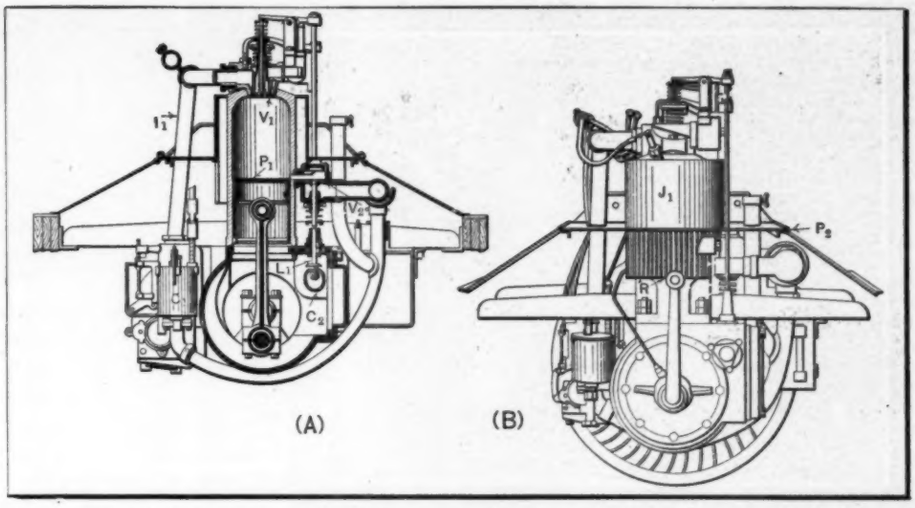



Fig. 2—Sections of the motor: (A) Through a cylinder, presenting details, and (B) Exterior of a cylinder showing method of cooling

### EXCELLENCE OF FRANKLIN FINISH AND BODY WORK

The general finish of the several models is on a high plane, and, in keeping with the trend, a torpedo type, with a Renault front, seems to take the place as the "leader," judging from the attitude of the spectators who hovered around the Franklin exhibit at the late Garden show. The company offers for this year the models as follows:

Model G, as a touring car or a runabout.

Model D, in touring car, runabout, landaulet, limousine, and in a close-couple design.

Model H, touring car, runabout, limousine, and close-couple.

Model K-4, town car.

Model K-3, taxicab.

### ATTENTION TO DETAILS TAKES ON IMPORTANCE

Experienced autoists fully realize that, a car may be of excellent design, well made from suitable materials, and still be too troublesome to tolerate. If the wiring for the ignition system, for illustration, is not well installed, ignition troubles (even if the magneto is thoroughly good) will be continuous. In this and the many other ways, involving details, Franklin automobiles have been brought up to a high state of perfection, thus enabling the maker to concentrate upon the air-cooling work in order to bring it up to date as well—this task is finished.

### FULL ELLIPTIC SPRINGS USED THROUGHOUT

Much of the fine performance is attributed to the excellence of the spring action; all types of Franklin cars having full elliptics, and, in order to get all there is in this phase of the designing problem, the springs are swung in such manner as to bring out the good working qualities of the materials used. In addition to the springs, there is the wood chassis frame, it being of laminated wood, of suitable design, assures strength even in excess of all reasonable demands, and, as is well appreciated, this type of material is extremely resilient, adds to "soft" riding, and is long of life.

The general appearance of the new models, from the point of view of the springs and frame, is as in former years, but the new front, designed to render the present method of cooling, adds something to the appearance which pleases beyond words. The style is smart, speed is written all over it, and critics seem to take kindly to the idea.

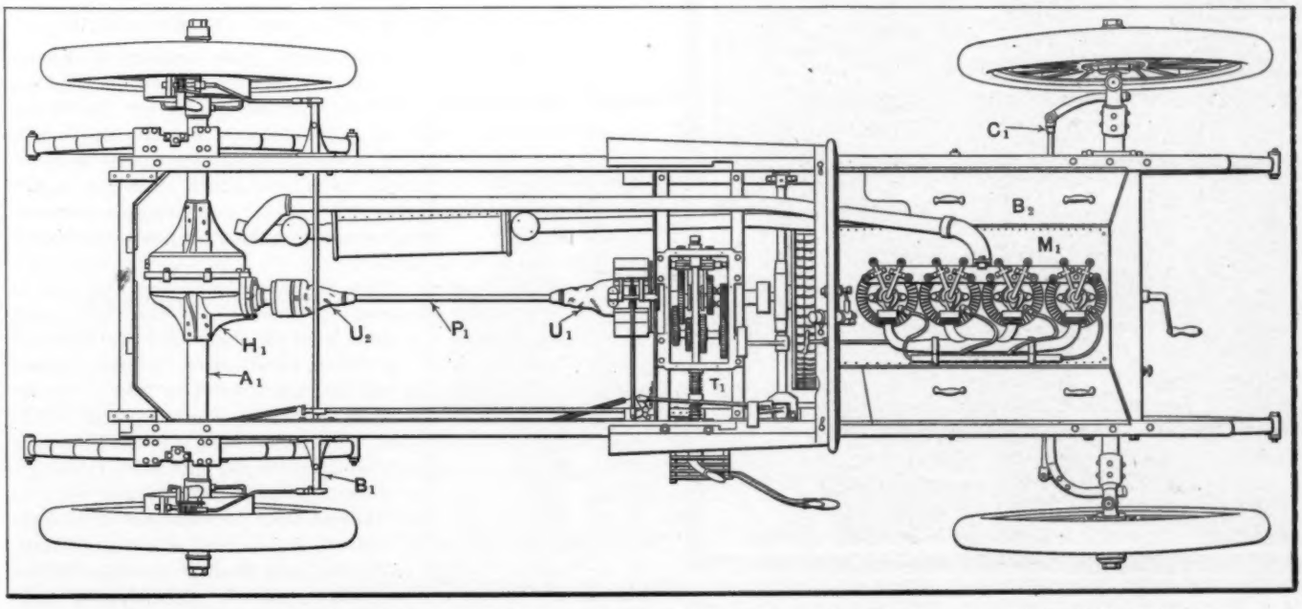
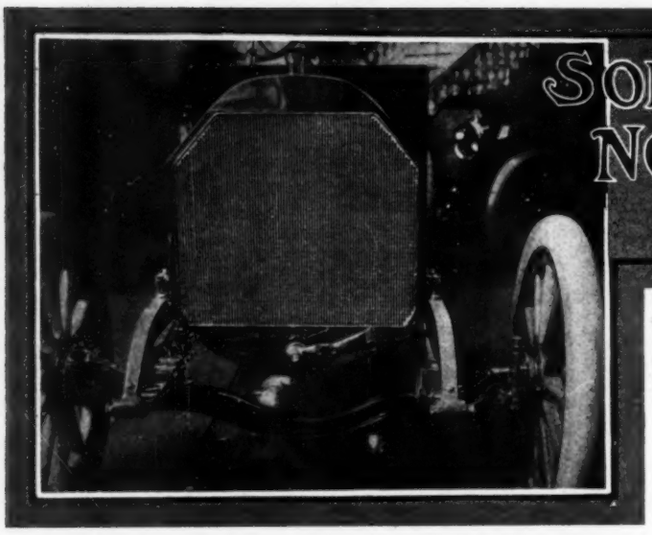



Fig. 3—Plan of a 4-cylinder motor mounted on a Franklin chassis with wooden side frames and full elliptic springs



# SOME NOVELTIES PRESENTED AT THE SHOWS

Fig. 1—Alco showing starting crank so contrived as to eliminate back-kicks under all conditions

THIS year, taking it as a whole, the displays at the shows in New York City partook of novelty along somewhat more mature lines than on former occasions. There was a distinct absence of the little "Yankee notions" of the catch-penny order, but, instead, the keen autoist, looking for something to help out, or influence for economy of operation, would not have to travel far in quest of the device.

The most striking example of budding novelty on a basis of high utility, was in the shape of the electrical generators designed for lighting, in which the speed of the generator is regulated even though the automobile motor used in driving may change speed over broad ranges. Gray & Davis, in the lamp division, presented one phase of this idea at both shows.

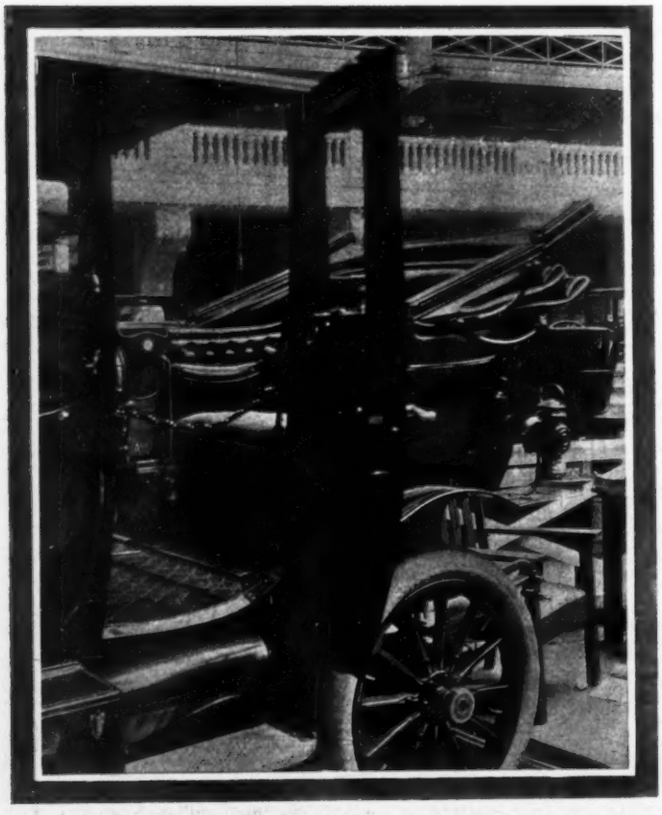


Fig. 2—Example of Packard Landaulet, showing the top folded, wide side entrance and luxurious upholstery

The Apple Electric Company offered its system in refined form, and Ward Leonard Electric Company is out with still another version of this plan, using a dynamo.

### ELECTRIC STORAGE BATTERIES

For lighting work the makers of storage batteries have in hand a class of equipment which is an advance on all former efforts in battery work. For lighting it is recognized that the service is difficult, and the present aim is to prolong the life of the battery rather than to skimp on the weight. The Electric Storage Battery Company, colaborating with Gray & Davis, in connection with its new lighting system, instead of trying to deliver a battery of high weight efficiency, employed the opposite method, and, with the added weight comes an assurance that, despite of the rather severe service, the battery will serve for at least three years under the conditions of operation stated. All along the line, considering the several makes of battery, this general plan of lengthened life is the paramount idea.

### HESS-BRIGHT TESTING MACHINES SHOWN

In bearing work there is much to be learned, and, at the booth of the Hess-Bright Manufacturing Company, the question of testing was on the surface. One of the testing machines exhibited was on the principle of the Schlaroscope, in which a hammer falls for a measured distance and bounces off of the test proof. In the Hess-Bright machine it was a steel ball which was substituted for the little hammer, and it is surprising how much the machine tells about the quality of a ball. An inferior ball is at once discovered, and even balls of different materials will show the difference at once.

Still another testing machine by the same company was devised to determine the difference in friction loss as between plain and anti-friction bearings, in which the bearings are required to sustain under conditions of flywheel effect, friction and speed conditions.

### MANGANESE BRONZE FINDS MANY IMPORTANT USES

At the booth of the Wm. Cramp Ship Building & Engine Company there was a wide display of Parsons manganese bronze castings, among which the motor frame for the Woods electric attracted almost as much notice as a front axle. This front axle, which was of the I-section, is most readily made in Parsons manganese bronze, due to the shape, which is looked upon by the patrons of this make of car as quite something out of the ordinary. There were many other Parsons manganese bronze parts there to be seen.

The great advances which are being made in the use of "silent chains" was adequately brought out at the shows, and, as an illustration of the many uses to which they are now put, mention will be made of the camshaft drive in the Jackson "thirty." This motor, it will be remembered, is of the "valves in the head" type, and the camshaft is superimposed. The drive, using a silent chain connection from the crankshaft, is noted for its silence, and, while motorists comment favorably, it is only the "wise" of them who look deep enough into the construction to note that the splendid performance is brought about through the use of a silent chain. This is a characteristic of the Jackson "thirty"; the remaining models are made in the conventional Jackson way, with camshaft superimposed, gear drive and a most careful method of lubricating the bearings.

### LOW TENSION WIPE-SPARK SYSTEMS

In the ignition methods, as they were to be seen on the various cars, there were so many examples of high-tension work that the average spectator may have missed some of the sights. Take the Premier exhibit for illustration. It might have been observed that the ignition was by low-tension, wipe-spark methods, in which the mechanism has some novel points, among which, it takes but a moment to remove and replace the system of insulation, which is in the form of porcelain bushings, which are all ground to exact size, and an extra set is provided with each car as a part of the repair kit.

The Locomobile, it will be remembered, is also fitted out with low-tension ignition; this company has ever adhered to this method, believing that the energy in the spark is far greater, and that insulation trouble is eliminated, it being the case that the voltage is approximately 100 instead of 20,000. The Gaeth is also in this class from the ignition point of view.

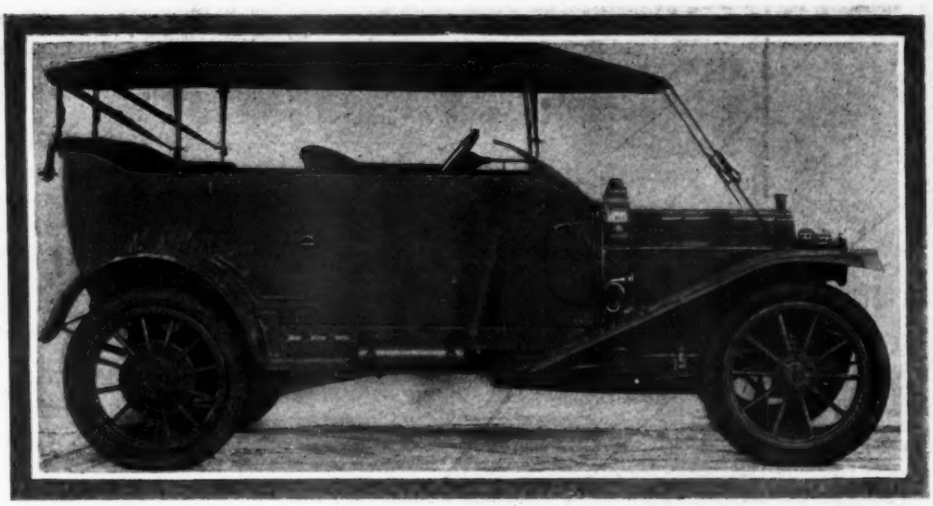


Fig. 3—Marmon torpedo type of body with unusual height of the superstructure.

### ALCO COMES OUT WITH A NEW CRANKING SAFETY

The title illustration of this article shows the front of an "Alco," made by the American Locomotive Company, Providence, R. I., and SI calls attention to the starting crank, which is different from any regular crank which was formerly used on Alco automobiles, although, last year, the company tried out this device, and, as it was at first reported, it was to be put on as a "special" this year.

Added experience with this device was so gratifying that the company decided finally that it should be regular, claiming that, in the furtherance of safety, the device might well be placed at the disposal of every user of Alco automobiles. As is well appreciated, when a powerful motor is being cranked, if the cranker is not careful, he is liable to experience a "back kick," and, according to insurance statistics, there are enough accidents which may be directly traced to this class of trouble to warrant the safeguarding of purchasers of this class of cars.

The crank, as shown, is so contrived that when the car is being cranked, if the operation is not properly performed, nothing of a disagreeable nature will transpire, because the finger which extends out beyond the starting crank will be engaged on a back motion of the crank, and the finger being connected to a reverse motion in the housing of the device, throws the crank out of engagement, positively, and what is equal to the point, within a very short angular travel of the starting crank. This device is very simple, there are but few parts, and they are sturdy.

### PACKARD BODY WORK

Fig. 2, which is of a Packard body as it was exhibited at the Garden, is sufficiently distinctive to warrant utilizing it here on the score of a specialty, and, as the figure indicates, it has art written all over it. The foundation of this, like all Packard body work, is by way of well-designed framing of ash, from seasoned wood, which is held in the Packard yard for fully five years before it is brought in and placed in the drying kiln with a view to further and desirable treatment.

The Packard kilns are especially designed for this class of work; means is provided to regulate the heat, and as the vapor rises it is condensed and carried away. The result is that the wood is well kiln dried after it is yard seasoned, and, naturally, under such careful conditions, the wood, before being stored in the yard, is inspected by a "forester."

The ironing, while it is designed to limit weight, is given the same care as an axle or a crankshaft, and the strength of the frame is therefore maximum, although Packard body work, taking it as a whole, ranks as light. The aluminum sheets, as they are attached to the framing, are "butt-jointed," and to cover the points a half-round trim piece is lined up over the joints. In order that the trim will look artistic, the aluminum is so cut that the joints favor the undertaking, and, since all the trim pieces are screwed on after the holes are drilled, the work is securely held, while the finish is perfect, because the screws are all countersunk.

The aluminum, besides being securely placed, is of sufficient thickness to stay in place, and the chances of denting are eliminated, due to backing which is placed wherever the situation would seem to warrant. At one or two points castings are used, they being of aluminum, it being the idea to add to the strength of the framing, and make difficult curves. The finish on the body shown is up to the limit of the carriage-maker's art, and, with the work all done in the Packard plant, under the watchful eye of skilled and exacting inspectors, there is nothing

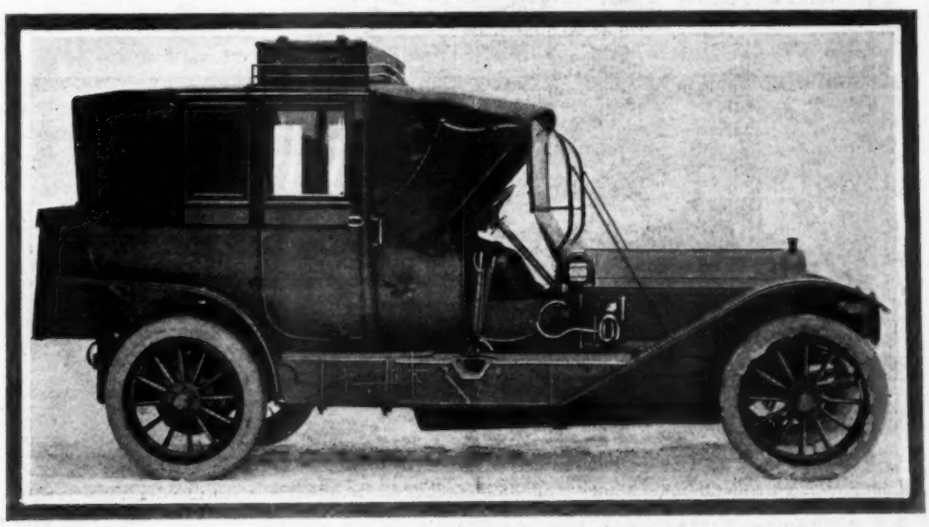


Fig. 4—Pierce-Arrow automobile fitted with a commodious touring body, including comfort.

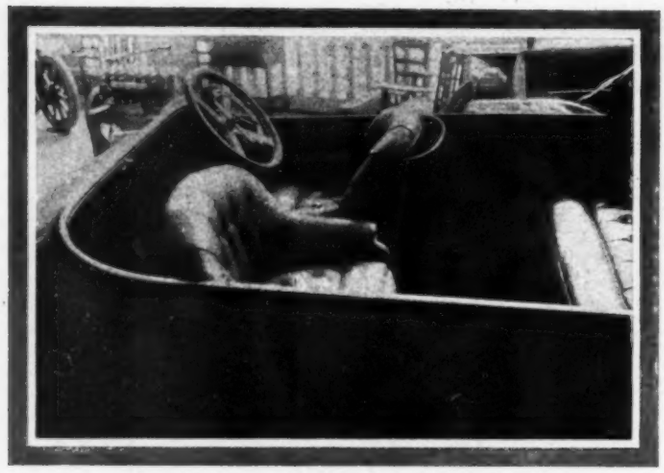


Fig. 5—Palmer-Singer torpedo type of body, looking in to see the collapsible front seat which facilitates

to expect but the longest possible life from this point of view. First-rate work is the cheapest in the long run.

The entrance is wide, and the upholstery within is that which makes the lap of luxury. Purchasers are given a wide choice of materials for upholstery work, and, according to the usual Packard practice, it is the aim to give to each owner just the results desired, considering, within all seriousness, the artistic tastes of those who indicate capacity to judge.

### MARMON COMES OUT WITH A TORPEDO TYPE OF BODY

Of the torpedo types of body work which were seen this year at the two New York shows, it is highly improbable that any of them attracted more attention than the Marmon. This body, besides being of the usual Marmon construction, which stands for stability as well as comfort, affords additional protection, due to the height of the sides, as the illustration, Fig. 3, adequately portrays. The entrances are commodious, interior work is on a basis of luxury without being in bad taste, and the whole situation portrays a considerable advance on the original idea of torpedo body work as it floated across the Atlantic a few months ago. This car has ample room, and seats five.

### PIERCE-ARROW PRESENTED A TOURING CAR OF INTEREST

At the Garden there were many sights to whet the interest of the man who sees things, but, taking the situation as it would appeal to the "globe tourer," there was much to be said for the "big" touring car, Fig. 4, quite naturally, in view of its roominess, then, due to the accommodations offered.

Space for baggage, the utensils of a protracted tour, and the "home comforts" which even a hotel limits, may all be found in the Pierce-Arrow. In many places, especially abroad, a day's run is full of little disappointments, and a space for eatables and refreshments is easily possible in this car. The upholstery, while it is artistic, is more so because it is substantial.

### LOOKING INTO THE PALMER-SINGER TORPEDO

The new body of this make was most interesting, and is representative of the original torpedo idea, limiting the facilities of ingress and egress to a single door (on each side of the body), so that to take a front seat it is necessary to "collapse" the one beside the driver's, pass to the front and thereafter erect the seat. It is a fine piece of work, and the ingenuity displayed in the construction of the collapsible seat is well worth examining personally. The general appearance of this body is up to the original foreign idea, but, if anything, the character of the workmanship is one better.

### DORAIN DEMOUNTABLE RIM FEATURES

Glancing over the rims that came to the surface at the Garden during the show disclosed several new ideas, among which the "Dorain," as here illustrated, Fig. 6 (A) presenting the wheel with the tire inflated on the rim ready to use, and (B) depicts the wheel with its Dorain demountable features.

Referring to (A) of the figure the security bolts B1 and B2 are held in relation to each other by means of the bar or keeper, K1, and since the nuts are designed with an integral flange, which fits under the caps, the whole unit may be removed, layed down, and when it is picked up again the nuts will be in place, being held by the flanges. The felloe of the wheel proper is in no way reduced in section, it being true that the auxiliary rim is plain, just as it would be in a standard clincher, were it necessary to employ one under the rim which holds the tire, as it is in demountable work. B, Fig. 6, shows the same wheel with the tire removed, and the parts which compose the locking device are also exposed to view, in which S1 is a socket wrench, the only tool required to remove and replace a tire, and K is the connecting portion of the keeper, of which four are used on a rim.

The terminations of the keepers are flanged, and the flanges, as shown, are with a wedge shape, W1 and W2, which wedges are forced up between the clincher and the supplementary rim, which is shrunk over the felloe of the wheel to hold the woodwork in secure relation.

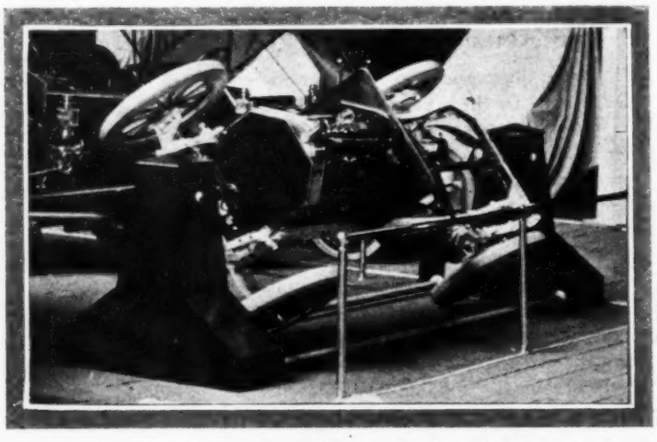


Fig. 7—Novel tilting frame used in the Thomas booth at the Garden to bring out good points of the Thomas chassis

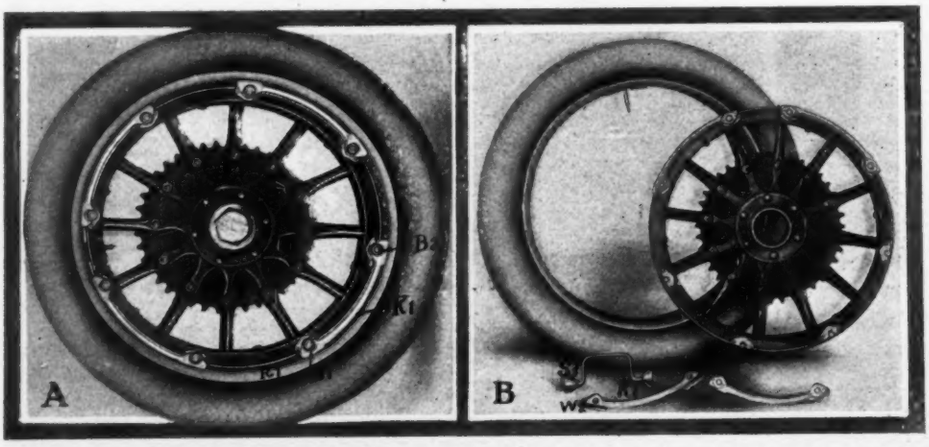



Fig. 6—Dorain type of remountable rim; (A) presents the rim and tire in place; (B) is the rim separated from the tire

# STABILITY INDUCED BY EFFICIENT COOLING

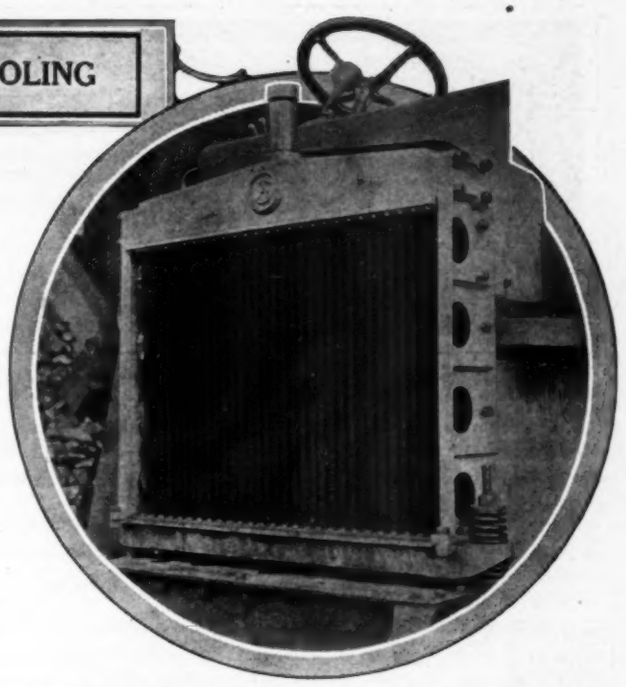


Fig. 1—Alden Sampson truck presenting method of cradling a strong type of radiator to sustain in trucking service

EFFICIENCY has many phases; thermal economy represents one of them, and, as a rule, when the thermal efficiency is at its best, it is nearly sure that the weight efficiency will show up favorably. The service efficiency, on the whole, is scarcely to be measured along the same lines, for, while the thermal efficiency and the power for weight may both be quite high, it is possible to have a condition which may be far from a high service efficiency.

In cooling, if the system is not one to assure stability under the most severe conditions, service efficiency will be at a low ebb. If a radiator heats up when a car is standing at a curb, it will take quite a little coaxing to realize a sufficiency of power for some time thereafter, or if in hill climbing the same heating is induced, it is a sign that service efficiency is too low, no matter what the "block" performance of the motor may be.

By "block" performance is meant the results which may be obtained from a motor on a testing block under the conditions which are likely to obtain if, in the testing room, the man in charge is lacking in "road" experience, or is trying to clear up the "floor." In abuse testing, which involves a run of, say, 100 miles, if the tester is alive to his opportunity, he will be able to tell if the radiator is competent, but if he fails to bring out the strong points, the purchaser will have the pleasant duty of finding how strong they are in fact.

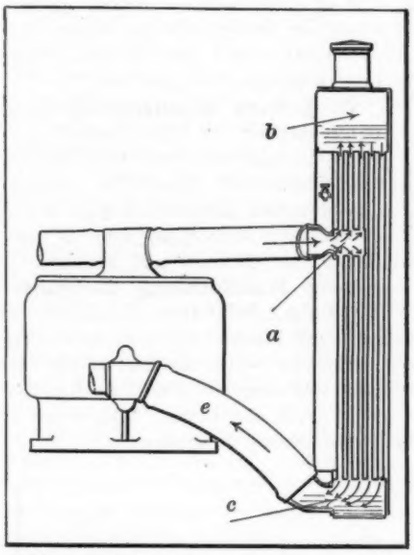



Fig. 2—McCord type of thermo-siphon radiator, as used on Regal automobiles, showing a pocket for the steam to distribute in

### RADIATOR DESIGNS

In general practice the problems involved are now quite well understood, and, as a rule, the ratio of flame-swept surface to radiator surface is quite well regulated, whereas, it was not so long ago that builders of motors thought that all essentials were cared for when the maker of the radiator was informed as to the horsepower ration of the motor, nor was there any assurance that even that rating was in full accord with the exact requirement.

In truck work, where the motor is required to operate under rather severe cooling conditions, it is the practice to allow a liberal rating of the radiator, and to introduce rather more of mechanical stability that will be found necessary in pleasure types of automobiles. Fig. 1 portrays something of this condition. The radiator is suspended on a flexible cradle, as it were, it being the idea to eliminate shock to the greatest possible extent, which is accomplished by a flexible mounting.

**McCord Manufacturing Company**—The radiator as shown in Fig. 2 is of the thermo-siphon type of special construction as used on Regal automobiles, in which a pocket is formed at a point part way down from the top of the radiator and the water with entrained steam enters this pocket where it is separated out, and the water passes up or down depending upon the conditions, but all the water, properly cooled, ultimately passes to the bottom of the radiator and thence back to the waterjackets of the motor cylinders. Fig. 2 (A) is another type of McCord radiator showing a form of rigid fastening, (B) depicts the lap of the McCord vertical tube, which is made on a special machine, and (C) is a "trunnion" type of cradling as used on this make of radiators, which is now quite frequently employed.

**Brisco Manufacturing Company**—This company manufactures a full line of metal stampings as used in automobile work, and the Brisco types of radiators, of which there are several, are now so common in use as not to require a great amount of explaining. Among the very efficient types used is the vertical tube form, in which plates, placed horizontally and quite closely spaced, serve as the radiating members, and being mechanically

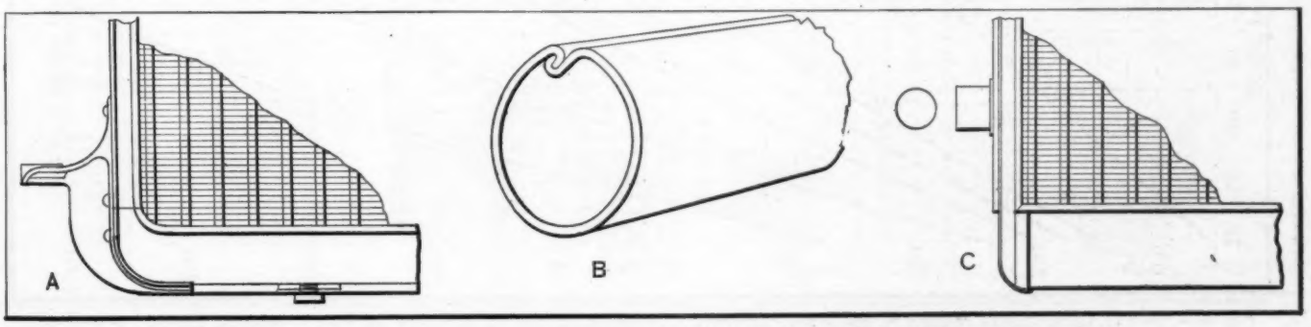



Fig. 3—(A) Fixed radiator support, (B) Tubes of McCord radiator, (C) McCord trunnion support

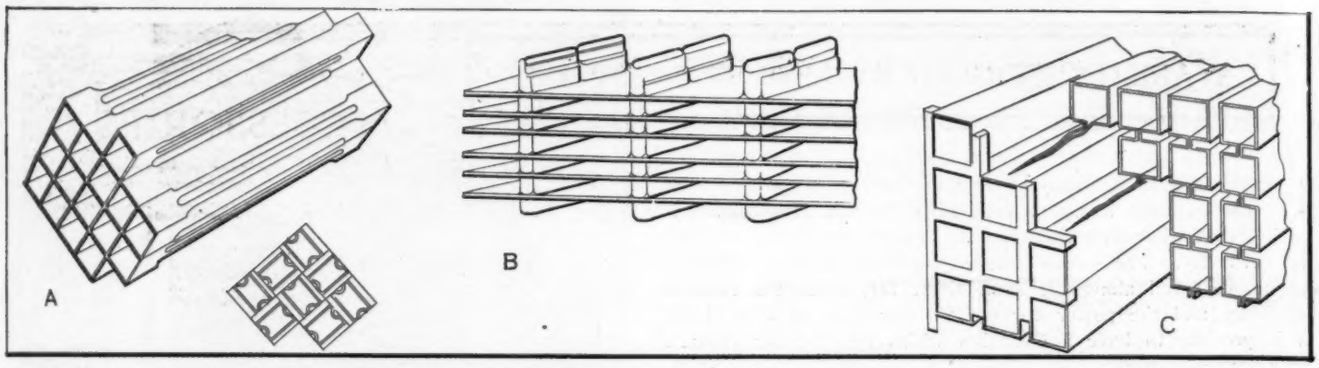



Fig. 4—(A) presents a section of the Brisco honeycomb type, (B) Brisco flattened tube construction, (C) Brisco tubular plan

well spaced with well-finished edges, the appearance is all that can be desired. The honeycomb type, as made in this plant, is much used and special forms are given consideration when it seems desirable to do so.

DATA ON FEDDERS RADIATOR TUBES

| Size of Tubes A | B | C | No. of Tubes per Ft. | No. of Tubes per Sq. Ft. | Cooling Surface per Tube | Cooling Surface per Sq. Ft. of Tubes | Remarks |
|---|---|---|---|---|---|---|---|
| 5/16" | 1/4" | 3 3/8 | 39 | 1521 | 3 3/4" Sq. In. | 5513 Sq. Inches | 15.7% More cooling surface than 1/4" tubes |
| 3/8" | 5/16" | 3 1/2 | 33 | 1089 | 4 3/4" " " | 4764 " " | Cooling surface 86% of 5/16" tubes |

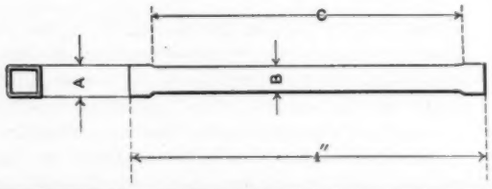



Fig. 5—Dimensions of a Fedders radiator tube as used in the honeycomb type of radiator

**Fedders Manufacturing Company**—This make of radiator is of the true square tube type, frequently designated as "honeycomb," and in Fig. 5 the dimensions of the tubes are given for one of the sizes made. This class of radiators is used in the most exacting service, especially in high powered motors.

**Mayo Radiator Company**—Made at New Haven, Conn., the Mayo radiator is now so well known as not to require any introduction at all. It is used on automobiles of excellence and under racing conditions where high duty is one of the important points. This radiator is built up of sheet copper, with every provision to realize the greatest efficiency of radiating surface, and water circulation is looked after with much care.

**A-Z Company**—In addition to a line of sheet metal work this concern turns out honeycomb and other types of radiators of a class which are used in high-powered automobiles.

**W. J. Kells Manufacturing Company**—Maker of the well-known Kells circular tube radiators and the true honeycomb type, this company placed before makers this year a line of radiators in keeping with its reputation for efficiency and stability.

**Long Manufacturing Company**—The Long tubular type of radiator has been so much used that it is too well known to demand more than mention. It may not be generally known in the East at any rate that this is one of the really well-equipped plants in America for turning out radiators of all types and forms. This make of radiator is much used in severe classes of service.

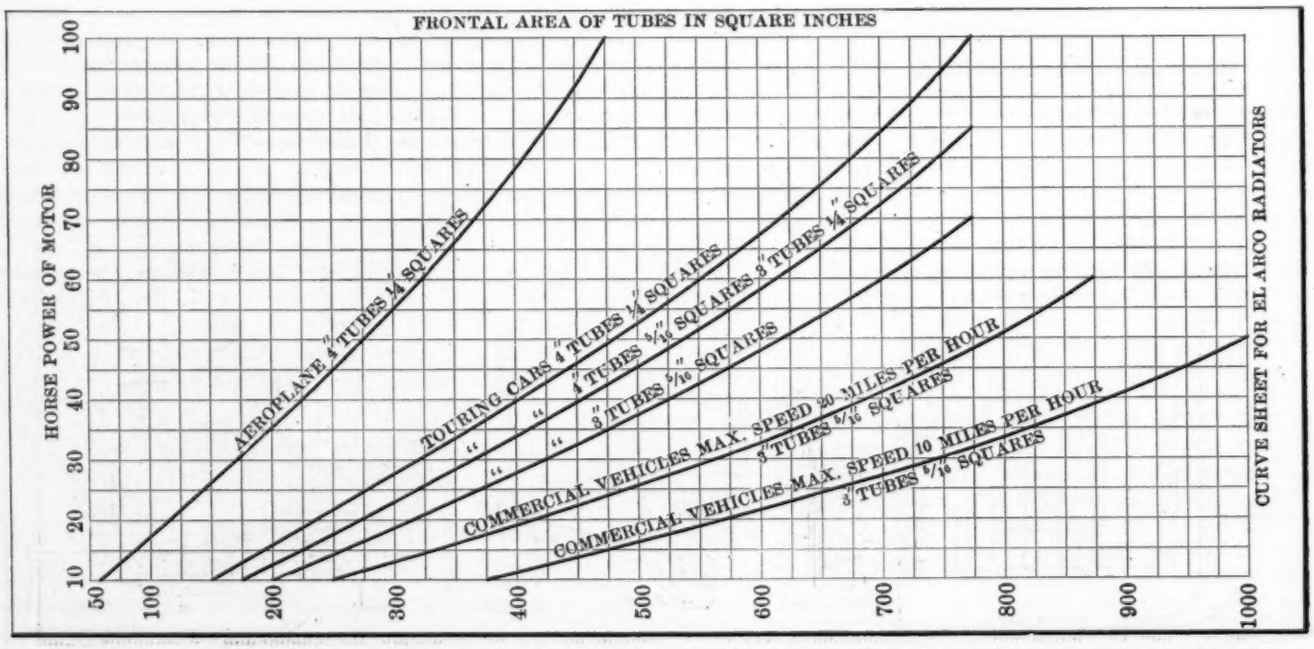
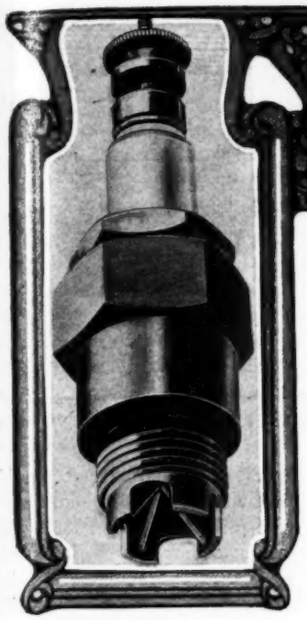

FRONTAL AREA OF TUBES IN SQUARE INCHES
HORSE POWER OF MOTOR
CURVE SHEET FOR EL ARCO RADIATORS
AEROPLANE 4" TUBES 1/4" SQUARES
TOURING CARS 4" TUBES 1/4" SQUARES
" " 4" TUBES 5/16" SQUARES
" " 3" TUBES 5/16" SQUARES
COMMERCIAL VEHICLES MAX. SPEED 20 MILES PER HOUR
3" TUBES 5/16" SQUARES
COMMERCIAL VEHICLES MAX. SPEED 10 MILES PER HOUR
3" TUBES 5/16" SQUARES
10 20 30 40 50 60 70 80 90 100
50 100 200 300 400 500 600 700 800 900 1000

Fig. 6—Curve of horse-power ratings of the Arco (formerly Livingston) types of radiators as used in several classes of service



U. & H. Magneto Plug

# SERVICEABLE IGNITION ACCESSORIES

HIGH-TENSION magneto systems deliver, without the aid of a step-up transformer, a sufficient electromotive force to break down the gas gap between the nodes of the spark plugs. Spark plugs disrupt at a voltage slightly above 15,000, hence the electromotive force delivered by the high-tension magnetos must be somewhat less, it being limited by the ability of the spark plugs.

Low-tension magnetos are constructed with but a single armature winding and deliver an electromotive force of about 100 volts, and in conjunction with a wide spark mechanism involving a hammer and anvil in proper relation, the art is drawn at the proper time, thus producing a spark with high energy.

Still another type of magnetos really belongs to the low-tension class in that the armature is wound to deliver a relatively low electromotive force, and a step-up transformer is employed by means of which the voltage is stepped to the higher level sufficient to disrupt the "gas" gap between the nodes of the plugs.

High-tension magnetos are sometimes used in connection with coils, they being sometimes so designed that by throwing a switch the magneto energy is substituted by a battery, and in the design of the magneto a supplementary interrupter is provided, thus accounting for the appellation, dual ignition systems.

**Connecticut Telegraph & Electric Company**—After two years of experimentation this concern now announces the completion and marketing (after March 1) of a new form of magneto. It will be made in four and six-cylinder types, which will be called 4-A and 6A. In its design, one point particularly aimed at was efficient sparking at very slow speeds, so as to permit ready starting without spinning the armature shaft, and also to allow of running the motor very slowly, which has hitherto been considered an exclusive feature of battery-coil ignition systems.

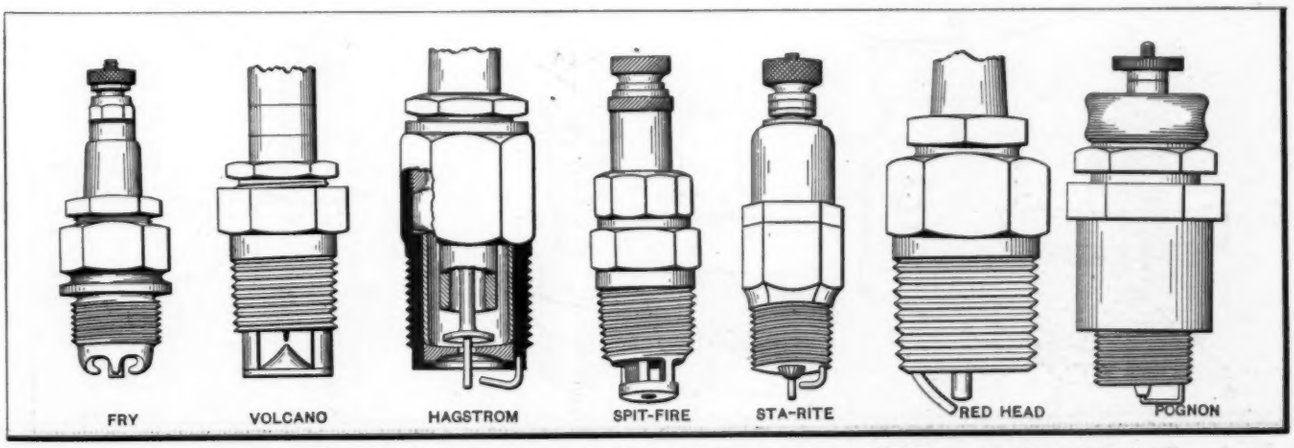
Another feature of merit is the change from right to left hand which can be effected by simply changing three screws. In this way dealers would not have to carry both kinds in stock, while the manufacturer gains also by making all of them just alike. Repair parts too are lessened in number and trouble reduced to a minimum. In place of the usual one spark gap four safety spark gap windows are provided. In case one of the cylinders is missing the spark will immediately jump across these windows, so that the ordinary man not understanding ignition can trace the missing cylinder as well as an expert.

**K-W Ignition Company**—This firm makes a low-priced magneto and a coil. The former is put out in two styles, one low-tension and the other a high-tension. Both are very simple in construction. Yet the efficiency and serviceability of both is unquestioned. This was well proven by an experience which a Cleveland man had with one of them on a Mitchell car, while touring in the West Indies last summer. On the boat a severe storm broke the car loose from its fastenings and damaged the axle, radiator and other parts located at the forward end of the chassis. When the damaged parts had been straightened and otherwise repaired, the magneto furnished the requisite spark on the first turn and, moreover, continued satisfactorily for some 1,000 miles of touring, which concluded the trip.

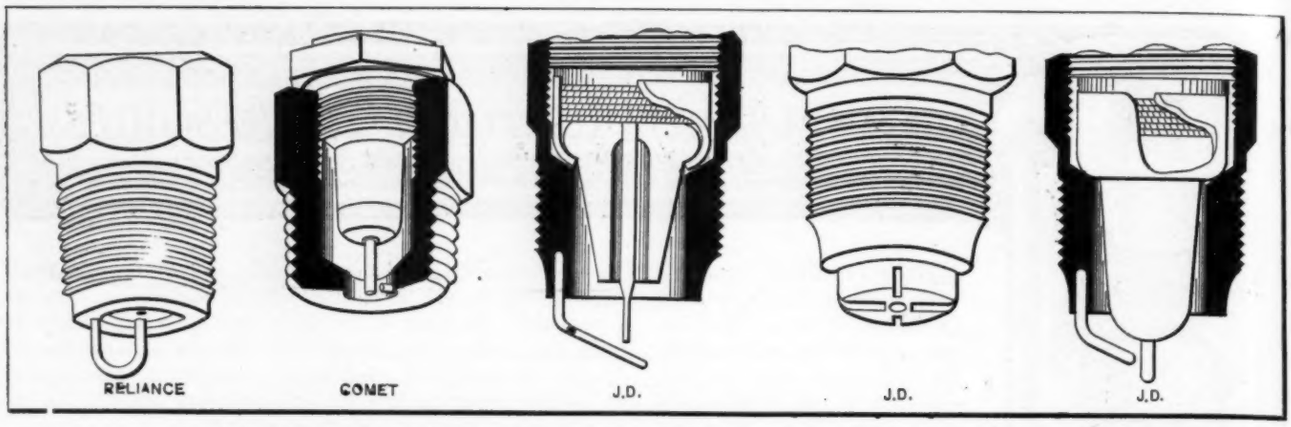
**Buffalo Ignition Company**—The Volta Magneto is continued for the season of 1910. It is well known as a true high-tension magneto with several valuable features. The whole device is small and compact, the magnets being arranged in pairs with additional pairs within. The contact-breaker box is both simple and accessible, the spring holding the cover on normally being such as to be turned aside by a simple twist of the finger. When so uncovered, the cam is found to have a diamond shape with rounded corners. The breaker is held against the cam, that is the hardened steel roller of it is, by means of a spring coiled around the pivoted end, movement of the arm tending to coil the spring tighter. In this way the tendency is to never lose tension.

**Standard Sales Company**—In the cut below, the Fry spark plug handled by this firm is shown first. It consists of a brass shell, within which is an all-porcelain center with a metal core, the lower end of which forms one electrode. By removing the binding nut the whole interior part is removable without disturbing anything else. Yet in spite of this accessibility it is sure to be gas tight, as gaskets are used against shoulders.

**Volcano Spark Plug Company**—This Ashland, O., firm makes a porcelain plug which has a number of important points of difference. The porcelain carries the one electrode as the




Seven Varying Spark Plugs Now On the Market, Showing the Differing Individual Sparking Points




Another Lot of Five American Spark Plugs of Unquestioned Merit, Nearly All of Porcelain

center part of the core, this tapering to a fine point. The other is formed by a cone-shaped projection, which rests on a sort of circular shelf, the latter being connected to the body of the plug by a pair of side columns. The latter being fixed in position, the inside electrode is slightly adjustable up and down to secure the right spark gap distance.

**Hagstrom Bros. Mfg. Company**—This plug, the third on the previous page, has the unique feature of an internal cavity, which is partially closed at the bottom by a porcelain disc which is forced into the brass shell before assembling. In addition to this the central electrode carries a shoulder just above the porcelain, which in combination with the very small hole through the latter effectually prevents any oil or other foreign materials from entering and short-circuiting the plug.

**A. R. Mosler & Company**—Among the many spark plugs made by this New York firm the Spit-Fire maintains its popularity. The construction shown, partially in the fourth position on the previous page, is such that the spark must jump or spit through a small hole, thus the derivation of the name. The frame work of the base portion is carried down as a cylinder with two slots on the sides and the central hole just mentioned. The central sparking point projects from the porcelain core down into the very center of this hole.

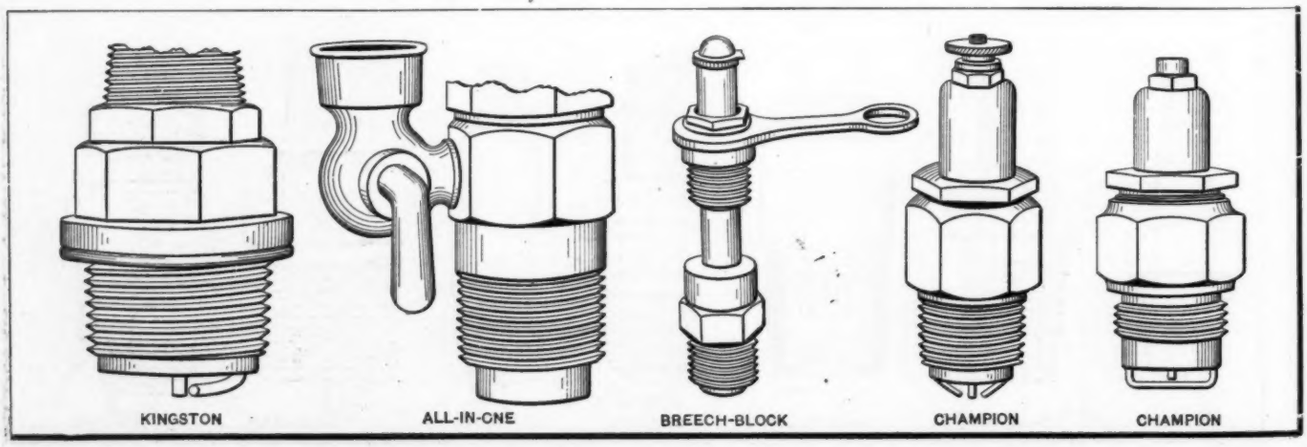
**R. E. Hardy Company**—At both the Palace and Garden shows, in addition to the well and favorably known Sta-Rite plug, this concern showed a new plug called Apropos. This had a central porcelain with a shoulder, which bore upon the brass shell, while the locking nut jammed down upon its upper surface. The result was a double gasket effect, which insured its being gas tight. The principal feature, however, was the shape of the lower end of the porcelain. The center of this was hollowed out to form a cone, with the sparking point placed in the center of the cone. Oil in the cylinder would, through capillary attraction, draw to the center, in which case it would flow down the sides of the cone and away from the point.

**Emil Grossman**—Red Head spark plugs, as the cut on the previous page shows, are very simple in construction, consisting of a central core which carries a perfectly straight electrode. This with an inserted platinum wire forms the spark gap, the latter being bent over close to the central point.

**Jeffrey-Dewitt Company**—Heading the line of plugs made by this Newark, N. J., firm is the Reliance plug. The feature of this is perhaps its ability to spark under water. Since short-circuits are the greatest source of plug trouble, one that will spark continuously under water should be perfectly safe under any less arduous conditions. This firm also makes a lower-priced plug with the same porcelain core, but in three differing styles. The three styles are known as petticoat type, conical type and closed-end type, the name giving some idea of the construction. Thus the first has a form of central porcelain so hollowed out and surrounding the electrode as to resemble a petticoat. The second has a solid conical shape of porcelain within a perfectly vertical hole in the brass, while the third has a closed end, through which four small slots and a central hole allow the spark to fire and ignite the charge.

**Oakes & Dow Company**—This firm makes the Sootless and Comet, the latter being illustrated above. It has a single central electrode which projects through a large hole in the brass shell. In one side of this latter hole a small platinum tit is set so as to come to within the proper 1-32 in. of the center piece.

**Buffalo Carbureter Company**—The All-In-One plug serves as more than a simple sparking point, in that it includes a priming cup, which may be used, taken with the pressure within the cylinder, to form a plug cleaning means, while the cup may be used in addition to convey kerosene to the cylinders as well as spark plug, thus cleaning out both. It is a very useful adjunct.




Quick-Detachable Idea and Multiple-Use Feature Appear on Some of the Current Plugs

# WIND SHIELDS ARE NOW VERY WIDELY USED

WITH increased use has come increased knowledge of the many advantages of the wind shield, this resulting in a more widespread adoption. This matter has progressed in the past three years, until now it may be said that the present status is such as to include a wind shield among the many accessories looked on as necessary. Or, in the case of this being omitted, the omission is such as to call for its addition as soon as finances will allow.

Comfort, convenience, safety, health, and many more desirable conditions are furthered by the use of a wind shield. Thus, to expand on some of these or to prove their existence, one might take the first, comfort. No one will deny that driving against a head wind is uncomfortable, or against a driving rain or snow, or more, against a dust storm. All these render the driver of the car uncomfortable and uneasy, to say nothing of some of them making the practice of driving dangerous. With a sheet of plate glass stretched across the front of the car, all of them are avoided, as the air, whether laden with rain, snow, dust or other undesirable things, must pass over the driver's head.

In the last analysis, what is a wind shield but a sheet of plate glass, with perhaps a division across the middle or elsewhere, and adjusting means for retaining it in any desired position? This certainly describes the wind shield exactly, and the only difference among the many now placed on the market lies in the materials used, finish given to them, parting of the glass or non-parting arrangement as the case may be, adjustment mechanism and its working.

With the idea, then, of disseminating a wider knowledge of this desirable accessory, a number of its present forms will be described, the cases being taken at random from those exhibited at the Palace and Garden shows, just closed. Space being somewhat limited for such a large subject, the ones illustrated by means of drawings will not be described.

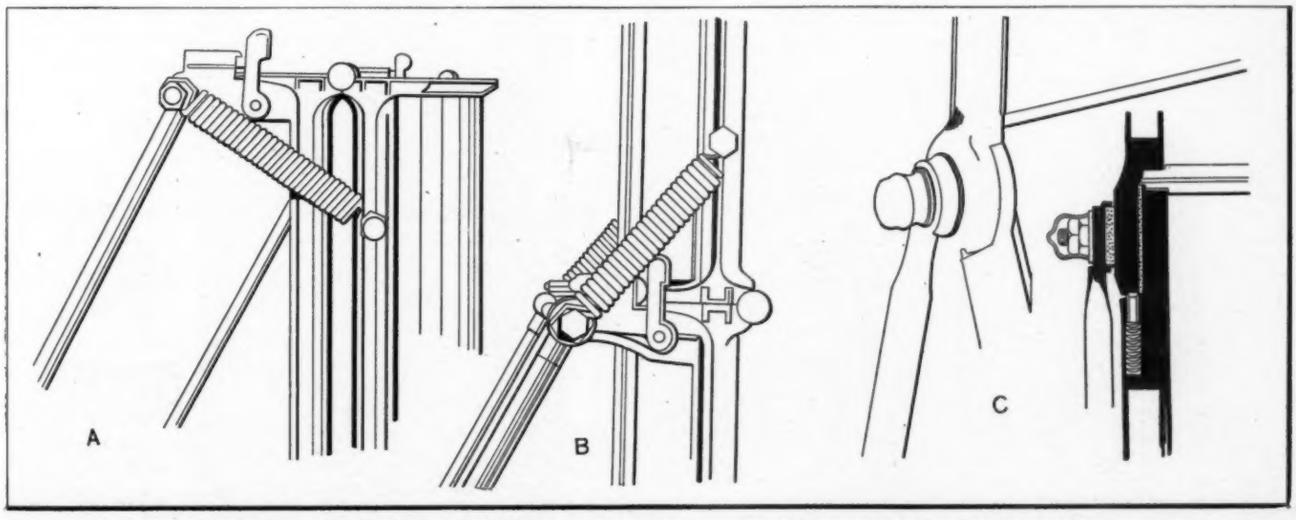
**Banker Wind Shield Company**—Two styles are made, both of a very high grade of material and workmanship. These are known as No. 1 and No. 2, the difference being small. Of the two, the latter is the one which is being pushed. The principal feature is that of the double fold, which allows of the shield being folded up and laid over the hood when its use is not desirable. Beyond this the glass is parted in the middle, but the parting line is rendered invisible by the absence of any molding or binding along either edge. This does not obstruct the vision as would a metal edge at that same point.

Rubber backing for the glass eliminates any possibility of noise, which, to put it mildly, is not needed. Aside from doing away with noise, this feature is of value, in that it lengthens the life of the whole device. The hinge is always a vital point, and this one has been designed with much care. It is of the so-called piano type, with a knurled locking nut which governs the opening and closing. When it is desired to open the shield so as to lay the top part down, this nut is turned part of a turn, which allows of its being pulled over to the side, and frees it from the knife edges which hold it. When freed, it turns over readily.

**Chicago Wind Shield Company**—Several named and lettered styles are marketed, among which may be mentioned: Styles R, O C, Dixie, Dixie Tube, Perretz, Telescope, S I, Oriole and Ziz Zag. These differ so widely that it would be impossible to describe all of them, so one or two will be selected for description. The Dixie is an inside folding wind shield, that is, the upper half folds over toward the driver, laying down close to the lower or fixed part when so folded. When folded, it is locked firmly at both top and bottom, so that the objectionable rattle is done away with. This fold is double, that is, the top of the shield has a compound movement about two pivot points, and does not describe a simple circle about the hinge. This is done to clear the steering wheel, which is usually so close to the dash board as to prevent the folding except as described.

Birch is the wood used, while the trimmings are of brass, with corners reinforced by special brass corner plates. The quarter-inch plate glass used is set into felt so as to stop rattling and lengthen the life. There are no thumb screws to take out, and the whole construction is such as to allow of reaching up from a seat at the wheel, folding it up or down, and going on without any fuss or trouble.

**English & Mersick Company**—This old-established New Haven carriage supply house is placing on the market the Tabor flexible wind shield. This, too, is made with an invisible central line of division, while the lower part is hinged to the dash board. The latter provision allows of the double fold, top over bottom, top and bottom over hood, which is so pleasant on warm days. Both of the joints are locked in the extreme and all intermediate positions, so that the top part alone, or both the top and bottom may be inclined. More than this the construction allows of this inclination being either toward the driver or away from him, thus, with the upper part vertical at the forward edge of the top, and the lower part sloping from the dash board line out to this, the position is perfect protection against fog or rain, while the shield is such a distance from the driver that he is enabled to see the road ahead very clearly, even with a clouded or befogged glass.




Spring Holding Mezger Wind Shield in Place (A & B), Also Action of Friction Automatic (C)

**Emil Grossman**—This firm, besides making "Redhead" spark plugs, and divers other automobile products, is the maker of the "Hydraulic" windshield and other types of the same general character. In this type of windshield, besides the automatic feature which prevents the shield from collapsing suddenly, French plate glass, very carefully annealed, is used, and, in its application, adequate means are taken to securely fasten the glass to prevent breakage. The metal work is very neat, has all the elements of needed strength, and a grade of liquid is used in the spring dashpot which remains at a constant state of viscosity under all temperature changes.

**Hill Manufacturing Company**—This Buffalo concern exhibited at the Palace show a full line of self-acting or automatic wind shields. These fold and are made up on a framework of 7-8-in. brass tubing, with 1-2-in. supporting rods. The shield is made in three differing widths, 40, 42 and 44 inches, which will take care of any ordinary dash board now used. The upper half of the shield may be tilted forward or backward at any angle, being held where set by compression.

**Metal Stamping Company**—The spring catch, which holds the shield in the folded or open positions, is the feature of this New York City product. It is made in two widths, both 29 in. high, these being 41 and 44 in. The catch is made sloping or tapering to a narrow edge, two semicircular notches being cut out of it on the two sides of the rod. Within the tubular framework of the shield are placed two spring-retained catches, one above and one below the parting, which catches slip into the notches through the impulse given them by the springs. This enables one to jerk the top out of its vertical position, and let go of it. The swing is circular and the catch at the bottom will retard the swing, and catch and hold it in the folded position.

This construction also does away with nuts, bolts or clamps, being complete in itself. The glass used is the best, selected, polished, French plate, clear and free from flaws. The frame is of heavy brass tubing mounted upon a mahogany filler board.

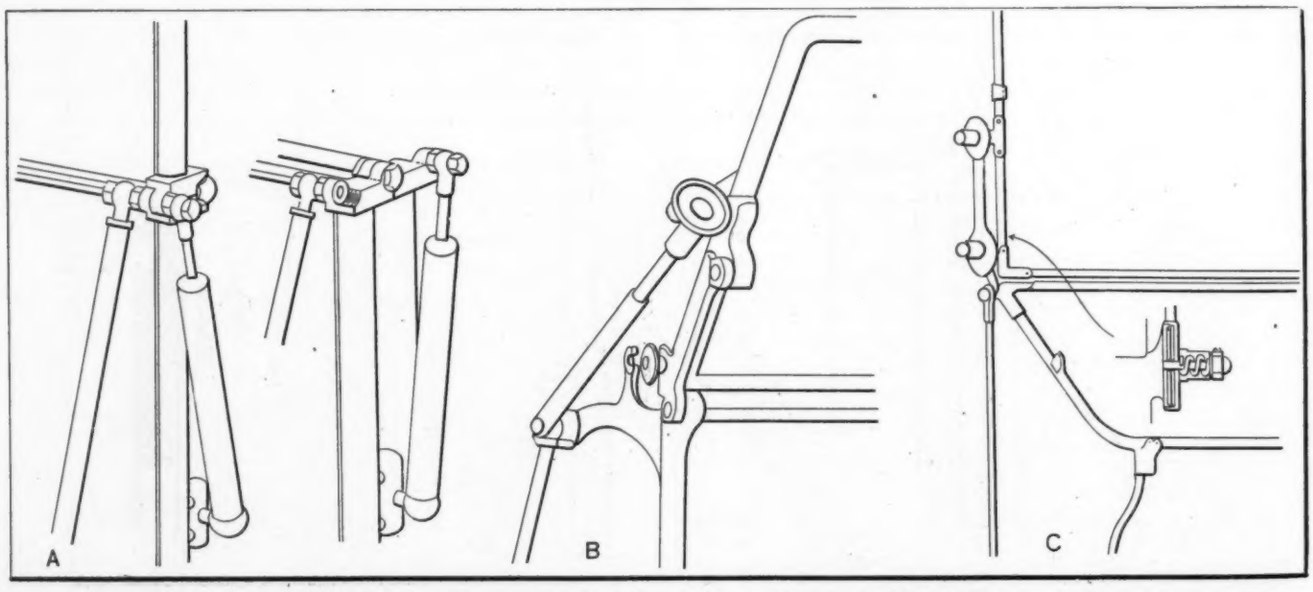
**Novelty Manufacturing Company**—Ajax is the name of the wind shield made by the automobile department of the Waterbury, Conn., supply house. It is described as strong, steady, silent, each one of these being considered a vitai feature. At the Garden show this firm attracted not a little attention by giving away a small case, containing a mirror, powder puff and some powder. Needless to add this made the booth attractive to the ladies, while the result was to make the ladies more attractive.

**Troy Carriage Sunshade Company**—While many widely differing types and sizes of wind shields are made, the ones featured are numbers ten and twelve. The former is built, the makers say, to outlast the car, which speaks well of the construction. This has the lower part fixed, but the top or upper half, may be set in any one of four positions besides the most usual vertical and folded positions. A double pivot hinge allows of an offset position, that is the plane of the top either forward or back of the plane of the lower fixed part. Neither of the two models possesses any thumb screws to get out of order, or require time for manipulation. The upper sash, so-called, is self-locking in any position, the lock being a positive one. The lock is aided by crucible steel springs in keeping the contact parts in constant juxtaposition.

Like model ten, model twelve has the top hinged, but in addition the bottom is hinged to the top of the dash in a similar manner. This gives the bottom as many possible positions as the top, namely, four besides the vertical and horizontal ones. The whole wind shield, then, has all of the possible combinations of the two, considered collectively.

**Vanguard Manufacturing Company**—These Western makers have given the wind shield the name of the firm—Vanguard. It does not rattle, in fact, the makers say that it can not rattle. The shield parts in the middle, the brass binding along the two middle edges being very narrow, so narrow as to be practically invisible. The hinge is a two-radius one, so that the top part will swing down at the back without hitting the steering wheel, or in any way interfering with it. A clamp at the end of the two parts is hinged to the lower part, and held to the top by means of a thumb screw with a very large milled head. This clamping strip is also hinged to the bottom, so that when the top is swung over, the strip turns over with it, and the thumb screw comes into play again to lock it in the down position. The wood frame is of selected material, while the rod and bindings are of tubular brass, all other mountings, including the hinges, being of very heavy, machined brass.

**Vehicle Apron & Hood Company**—New and different in every respect are the 1910 wind shields of this company, the 1909 line having been discarded entirely. The newest shield is of the automatic variety, folding either forward or back. The folding action is controlled by a spring of oil-tempered steel, which is concealed in a cylinder at the ends or sides of the wind shield parts. In conjunction with the plunger operating the cylinder, this spring comes into action, the plunger having a large double-acting leather valve which controls the passage of the air in altering the position. The combination of the two is said to be very effective. The frames are of heavy brass tubing, and the hinges of manganese bronze castings, this material being well known for its wearing qualities and strength. The rods which brace the shield are of brass, and adjustable for length. Rattling is avoided by mounting the glass in a channel-shaped rubber.




Mechanisms of Hydraulic (A), Sprague (B), and Troy (C) Wind Shields

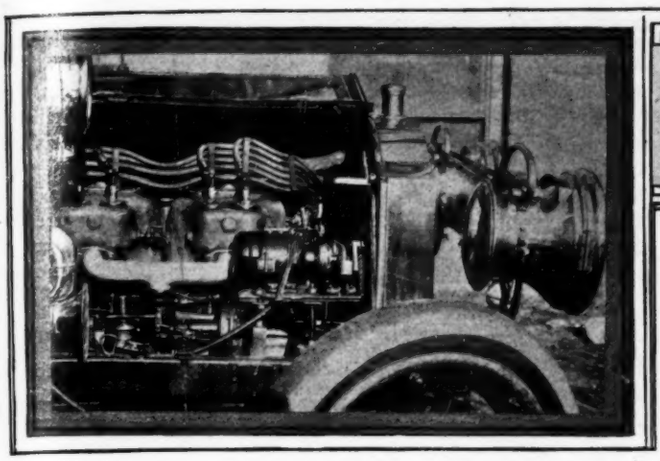


Fig. 1—Ward Leonard electric lighting dynamo shown on place beside the motor of an automobile, indicating compactness

# Electric Lighting Takes on Significance

STORAGE batteries now seem to be of the greatest value in connection with gasoline automobiles due to the facility they offer in the process of lighting. In electric vehicle work this question of lighting has proven to be so pleasing, safe and reliable that autoists outside of the electric vehicle field have awakened to many of the possibilities and are strongly urging action.

Commercial activity is always but a reflection of a demand and, in view of the pressure which has been brought in this connection, makers of electrical equipment, as lamps, dynamos and storage batteries, are endeavoring to supply the requisite equipment. That attention to this matter in a commercial way has resulted in several solutions of the problem is now well established, and, among the systems which attract notice, that illustrated in Fig. 1 possesses more than commonplace novelty. This system was brought out by the Ward Leonard Electric Company (Bronxville), New York City, and, as the illustration portrays, it is compact, readily nested under the hood alongside of the motor, and as to its ability to serve, there seems to be no question unless to count its virtues.

### WARD LEONARD LIGHTING DYNAMO FOR AUTOMOBILES

This system includes a dynamo D, taking its power from the automobile motor, through connection with the half-time gear system, or in any suitable way, and since the automobile motor runs at a variable speed, a means is at hand for regulating the voltage of the dynamo, in this case utilizing the principle of field control; that is to say, the field excitation is varied to suit the requirement as indicated by speed changes.

The drive takes place through a magnetic clutch which is so contrived as to eliminate the need of adjustment for any purpose. The clutch is so small that it adds but little to the dimensions of the dynamo, hence the objection which takes expression by way of comment on the space demanded is uncalled for and experience with this device affords evidence of its competence.

### STORAGE BATTERY FLOATS ON THE SYSTEM

The storage battery, which is relatively small, floats on the system; that is to say, the battery, which may have the required number of cells in series as six, is connected across the terminals of the dynamo, hence the battery is in parallel with the dynamo armature, and since the fields of the same are shunt wound, they too are in parallel.

The dynamo is so wound that it is capable of charging the battery when the number of lights in circuit are less than the dynamo capacity, and the difference in potential across the terminals of the battery is that of the dynamo and the lamps in circuit at all times.

The dynamo has a capacity equal to the requirement of a large limousine; side-lights, searchlights, inside illumination and tail lighting being included. The battery, when floating, is always available to take the load if the dynamo is shut down, which would be true were it necessary to stop the automobile motor for any purpose, and when the automobile motor is started again the storage battery will then be charged automatically.

The wiring system in this application is so arranged that the ignition and lighting systems are quite independent of each other. The lighting circuit is what is technically designated as a "metallic circuit," which is another way for saying that the circuit is completed for both outgoing and return, rather than to use a so-called ground return, which is a technical way of stating that some part of the metallic frame work is utilized for the return circuit.

The advantage derived from employing a metallic circuit for the lighting system, entirely aside from questions of insulation, lies in the non-interference of the lighting system with hte ignition work; ignition wiring is "grounded," and were a grounded lighting system to be used also it is possible that some form of trouble would be experienced.

The storage battery used in this class of work is very interesting and will be the subject of separate discussion in an early issue of The Automobile. For the present it will suffice to state that, while any battery, if it has the required number of cells in series, will do the work, provided it is capable of being floated on the system and has a characteristic which will accord with the nearly constant voltage requirement as it is represented in lead storage batteries of well-known forms.

The new idea, however, seems to be in favor of a relatively substantial battery, one which will float on the system for, say, three years, and demand little or no attention in the interim. This is possible if the battery is very substantially made, and it is interesting to note that the introducers of this form of electric lighting decline to take notice of the question of weight with the idea of reducing the same to a low point.

It is claimed that the weight should be enough to assure permanence of lighting without attention, and were a battery of high weight efficiency selected, it is reasonable to expect that "buckling" and other battery troubles would be more likely. The plan then, considering the newer systems, is in favor of the greatest possible stability, excellence of lighting and low cost of maintenance even in the event of lack of care.

The batteries are especially sealed, loss due to "agsing" is reduced to a low ebb, and evaporation of the water of the electrolyte is aborted. Gassing does not transpire because the battery

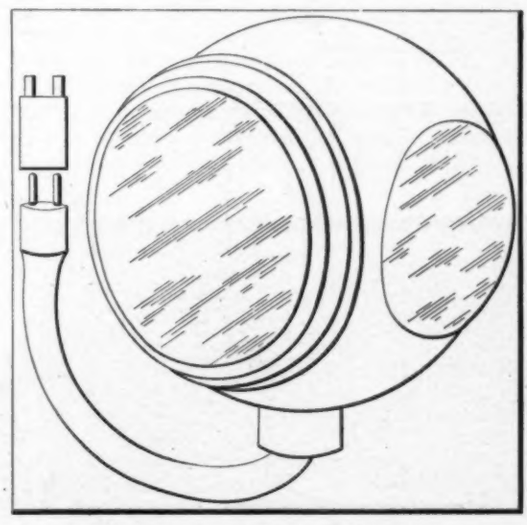


Fig. 2—Dietz tail lamp designed for electric lighting, and fitted for tungsten lamp, with suitable terminals

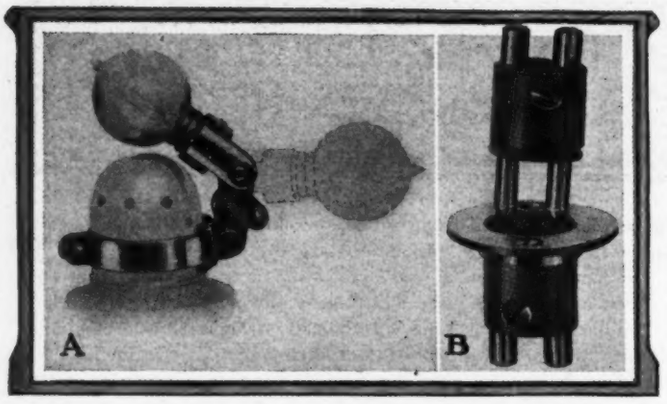



Fig. 3—Culver-Stearns electric combination lighting fittings; (A) presents lamp attachement, and (B) portrays the terminal

is never charged to a high potential difference—it floats—and the specific gravity of the electrolyte (liquid in the cells) should hold to a nearly constant level at all times. It is true, of course, that best results from any battery will follow if the cells are given the least bit of attention from time to time, but in this new form of lighting it is the purpose to reduce the matter of the care of the battery to a minimum. This will be quite possible in view of the present state of the art, from the battery point of view.

### BATTERIES ARE USED WITHOUT DYNAMOS

This statement of the methods employed in lighting work would be incomplete without including one or two other variations which seem to be stable. In many cases, in the absence of a dynamo, the battery is of sufficient capacity to do the lighting and ignition work. This class of battery is selected for the service to be rendered and, in view of the extent to which lighting batteries are used, it is believed that the subject should be treated separately and at some length. This will be done at an early date.

### LAMPS ARE MADE IN COMBINATION FORM

In connection with electric lighting the lamps are made in combination form; either acetylene or oil lighting may be taken advantage of in connection with the electric lighting, so that if the electric system should become deranged, the auxiliary system will serve in the emergency. Fig. 2 presents a Dietz electric tail lamp which is used to illustrate the nice way in which this class of work is being cared for by the makers of lamps, and, at the option of purchasers, lamps of this character may be had with an oil well and means for the use of oil burners when the emergency arises.

Fig. 3 presents three other forms of lamps, they being used ordinarily with electric (tungsten) lamps in place, and as an emergency measure the electric lamps may be swung back out of the way, and the oil burners may be lighted.

### STABILITY IS PRESENT TO A MARKED DEGREE

In these methods of caring for the lighting question, it is the aim of the designers to eliminate contraptions and make the parts to suit the work to be done. It is now a recognized fact that good lighting is, like good brakes, insurance of a high order; indeed, it is useless to have good brakes if the lighting is not well cared for, on the ground that to arrest the motion of a car it is necessary to apply the brakes in time; no matter how good and effective the brakes may be, unless the distance is well regulated, the car cannot be brought to rest quick enough to serve the purpose.

### CULVER-STEARNS ELECTRIC COMBINATION FITTINGS

As an illustration of the manner in which electric combination fittings are being made up, reference is had to Fig. 3, in which (A) is a fitting for a tungsten lamp to an oil lamp, and (B) presents a double pole terminal for the writing to lamps. These fittings are well made and appropriate to the needs.

Fig 4 of lamps made by C. T. Ham Manufcturing Company, Rochester, shows how the lamp makers are handling this phase of the problem. (A) represents the "Mars" tail lamp, (B) is the "Meteor" side-lamp, and (C) is the "Coupé." If so desired, these lamps may be fitted with electric combination fittings for tungsten lamps. It is a source of much regret that the whole electric lighting situation cannot be handled in a single number of THE AUTOMOBILE, but it will be the aim to give this matter much attention from time to time, and in the long run cover the whole situation. The interest taken by autoists at the two last shows rather goes to prove that it is a live subject, and that electric lighting is now on a very substantial basis seems to be a settled matter.

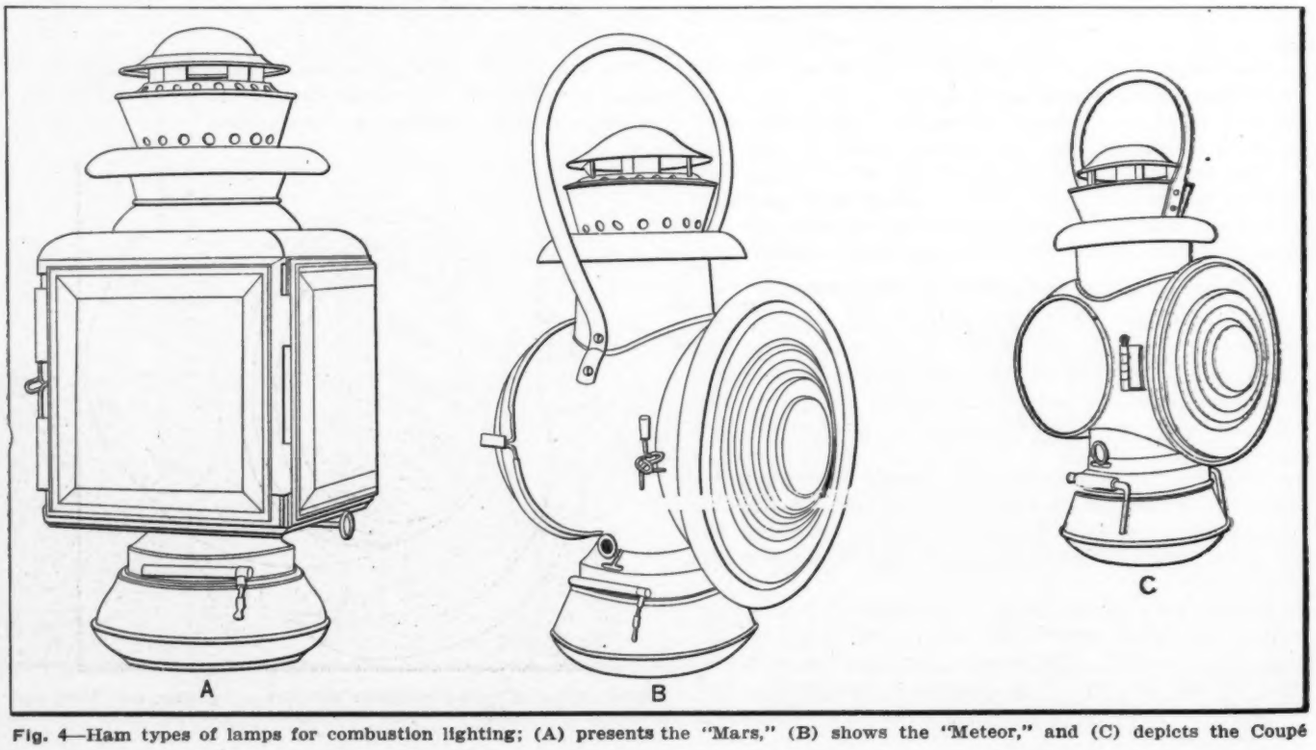
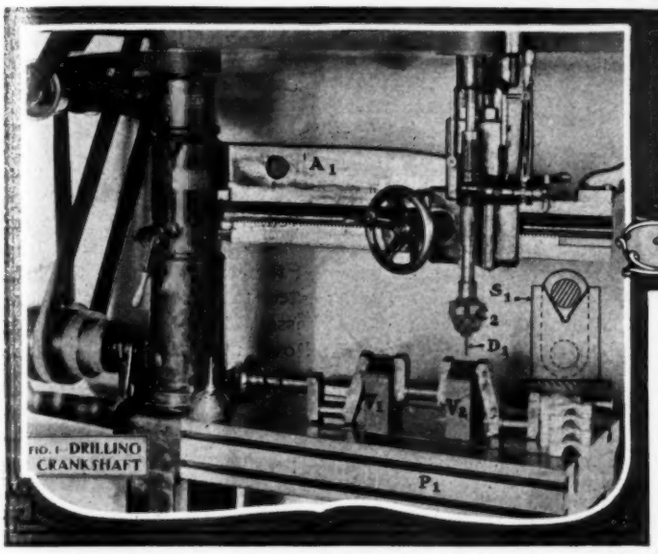



Fig. 4—Ham types of lamps for combustion lighting; (A) presents the "Mars," (B) shows the "Meteor," and (C) depicts the Coupé




# IN THE GARAGE REPAIR SHOP

By Thos. J. Fay

Fig. 1—Method of drilling crankshafts, using a radial drill, V-blocks and a little skill

THOUSANDS of problems confront the garage repair man and in many instances are difficult to solve, moreover, the work has to be started on a speculative basis in many cases, and if it remains in the land of speculation after the owner of the car pays the score, it is not a matter of great wonder. The bill will be no smaller on this account; the repairman is entitled to pay for speculating as well as for working; risk belongs to the owner of the car.

How to treat this problem intelligently, is a matter which puzzles the editorial office more, perhaps, than any other one matter, and, in the long run, it is very likely that, to start from the ground, and work up, is a necessity. If this way is to prove to be right, it is necessary to start with the very methods used in the plants in which the automobiles are made, on the count that, a repair, if it is anything, is but the process by which the parts required are made and installed. That the makers know how to produce these parts, is proven by their presence in the cars, and the question of quality is beside the repair problem, on the ground that good or not so good the parts have to be made for the specific undertaking if the owner of the car is to realize further service.

### INGENUITY TAKES THE PLACE OF TOOLS FOR REPAIRS

It is not to be supposed that a garage repair shop will have at its disposal all the generic types of machine tools which will be found in well-equipped manufacturing plants, but it will be one of the aims in this series of articles to show how a given operation can be consummated in many different ways, thus enabling the "provincial" garage with limited equipment to undertake even difficult tasks, although hampered by lack of facilities.

To some extent simplicity will have a bearing, that is to say, some of the methods which will be described will be so out of keeping with the practices in the "big" well-equipped garages that in the absence of fair consideration of the many angled problem, garage repair men will feel called upon to criticize—let the criticism come; tell of a better method; it will be afforded a resting place in the columns of THE AUTOMOBILE.

Since a garage, if it runs a repair shop, must cope with all sorts of jobs ingenuity must take the place of equipment more often than not, and it will be one of the specific undertakings to afford an insight into methods which will serve even when the tools which are best are not available. To illustrate this point it is enough to say that a drill press, for instance, is likely to be available in even the most poorly equipped garage repair shop imaginable, and it should prove of advantage to some to know in how many ways a drill press can be made to serve, moreover, without countenancing an inferior repair job.

Crankshafts are of such great importance in power plant work and they have to be so intelligently treated, that one is taken as the first thing shown. In this case a radial drill, Fig. 1, is shown in position for drilling the oilholes on the connecting rod pins, this being a rather troublesome operation. The crankshaft C1 is set up in V-blocks V1 and V2, they being high enough to bring the "work" up above the face of the platen P1, to clear the flange and throws of the crankshaft, so that the frame will rest in the V-blocks as the section S1 shows.

The round part of the shaft rests in the V-blocks and self-centers so that the tendency to work out from under is but slight and may almost be neglected. With the work in place and level with the face of the platen, all that remains is to chuck the drill D1 in the chuck C2, and swing the arm A1 of the radial drill around and in line with the work. By means of the travel of the drill mechanism the drill may then be centered and if the chuck is a suitable one it will hold the drill sufficiently true to accomplish the task. This illustration seems to be one with possible trouble to contemplate because of lack of sensitiveness of the drill. There is something in this view; sensitiveness, under certain conditions, is absolutely necessary.

One of the advantages of illustrating methods used in manufacturing is here clearly brought out, it being the case that this big tool is actually used in the Moon plant for just the work which is here shown, and the timid repair man, lacking in broader experience, perhaps, will be able to advance with greater confidence. There is no reason why a repair shop should not undertake the replacement of a crankshaft, even if it is the kind which is drilled out for oil ways, but it may come as a surprise to some that it is this "drilling out" that takes time and requires some skill.

### KINETIC BALANCE OF ROTATING PARTS

In working on parts which have to rotate at high speeds in service, it is necessary to have a nearly perfect kinetic balance. Fig. 2 illustrates the method in vogue for ascertaining a true "static" balance, that is to say, the balance which is necessary when the parts are not in rotation. For static determinations a set of balancing tracks T1 and T2 are placed on an even foundation, and when the work is placed on the tracks, it should come to rest in any position in which it may be placed. In the particular balancing equipment shown, the rest on the foundation is through leveling screws, L1, L2, L3 and L4, which is behind, hence does not show. This ability to perfectly level the balancing equipment is a very good idea which is in vogue in the

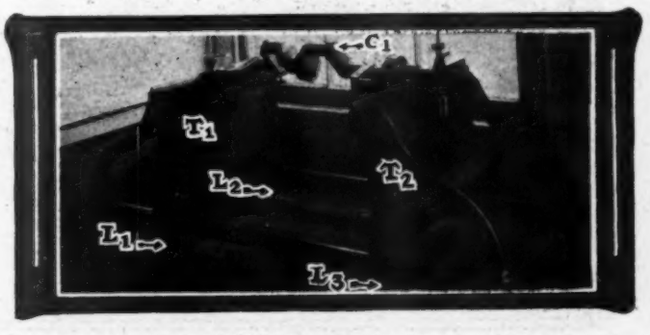



Fig. 2—Equipment used to determine the static balance of crankshafts showing method of leveling the same

Thomas plant at Buffalo, and some of the well-equipped garage repair shops have means at hand for ascertaining the static balance of the members which have to rotate.

A kinetic balance is a condition which must be arrived at in the designing process, hence the repair man does not have to cope with it as a rule. There is this to be said, however, when a repairman undertakes to improve on a designer, he must see to it that the kinetic couples are all satisfied. The mere fact that a crankshaft will prove out on a set of balancing rails, is no proof of its ability to run in a good state of balance.

Kinetic balancing must, of course, follow the condition of static balance, it being true that a part which is not in static balance cannot be balanced in a kinetic sense. For a perfect kinetic balance the conditions of a well-made six-cylinder crankshaft come near to satisfying the needs, and in future, as the situation would seem to warrant, this matter will be delved into at some length.

### IN REPLACING A CRANKSHAFT AFTER REPAIR

It is first necessary to determine if the journals are all round; this is done by using a micrometer, making measurements across the diameter at the middle, and at the two extremities, then repeating these measurements across the diameter, but 90 around in order to determine if the journals are round.

The crankshaft, if the main bearings M1, M2, M3, M4 and M5 are not on the same axis, will fail to deliver satisfaction, and this form of trouble has been heard of. If, before assembling, the crankshaft is set up in centers in a lathe, it will be an easy matter to ascertain if all the bearings were turned and ground while on the same centers by the simple expedient of revolving the crankshaft on its centers E1 and E2, and by means of a piece of blue chalk note if contact (shown by the chalk line) is equal all around; shown in Fig. 3.

If the first try indicates that the centers are not common, the amount of the difference will then be a matter to be found, which to do requires a further investigation, using instruments as surface gauges, or of greater precision, in the process. Should the condition be acute, it is doubtful if the crankshaft can be used at all. That the trouble must be removed is one of the points which can be accepted without discussion, and if it is more than can be removed by setting the crankshaft up in centers in a grinder, the case is hopeless, unless it is possible to reduce the diameter of the main bearings M1, M2, M3, M4 and M5 enough to make up for the error, and allow of grinding sufficiently to bring the journals round (to the new diameter) and on the true axis of rotation. In deciding to reduce the diameter of a crankshaft for the purpose of correcting an error, it must be remembered that ability decreases as the cube of the diameter, and under such conditions but a slight decrease in diameter makes a considerable decrease in ability.

If the crankshaft is true on centers, referring to the main bearings, the next thing to do is to scrape in the bearings. This operation is performed by blueing the journal surfaces, using Prussian blue, and applying just enough of it (by smearing over the surfaces with the blue on the end of the index finger) to evenly color the metal all over the bearing surfaces. An excess should be avoided.

With the journals thus prepared, if the "brasses" are quite close to size (which may be determined by a dummy shaft of the exact right size layed in placed of the crankshaft) the crankshaft may then be substituted and rotated, to cause the blue to spread out over the surfaces of the brasses. If the brasses are to the right size the blue will show all over the surfaces which should bear.

### BEARINGS SHOULD BE BACKED OFF IN TWO PLANES

Lubricating oil actually takes up room if it is present, which it must be if bearings are to be run for any length of time, even when the service is but slight; in a crankshaft, where the service is most strenuous, there is no possible chance of realizing service if the lubricating oil cannot work in and float the shaft on a film of the same. To be sure that the oil will work in, the brasses are scraped in such a way that they do not bear all around the diameter. In scraping it is the idea to back away (by scraping) toward the horizontal center line, as shown in the section S1, so that the shaft bears on the top and bottom and for a distance for about 1-3 around. When this condition is arrived at, the blueing should show, but there is no need of backing off more than a few thousandths of an inch at the points of no bearing, it being the case that oil will get by even if the distance is considerably less than five thousandths of an inch.

When the scraping is continued until the bearing around the girth is right, the next thing to do is to back off the metal in the axle plane. This is done by scraping in such a way as to leave a pair of truncated cone shapes (so to speak) with the crest at the center. This leaves the bearing surfaces firm at the center, and as the wedge-shape bearing increases toward the ends of the bearings, the pressure becomes less, with slight indication of blue at the outer ends.

The amount to back off in the axle plane is difficult to fix in exact measurements, but there is this to say: Trouble will be more likely when parallel scraping is resorted to than when the bearing metal is scraped away, for if lubricating oil is enabled to enter by scraping back toward the horizontal center around the girth, this same lubricating oil must be given a vent or it will stay in, prevent new oil from entering, and in a very short time it will have its lubricating qualities worn out, grit will accumulate, and the bearing will "freeze." The section B1, B2, B3, and B4, indicate, to an exaggerated degree, the backing off process in the axle plane of the journals.

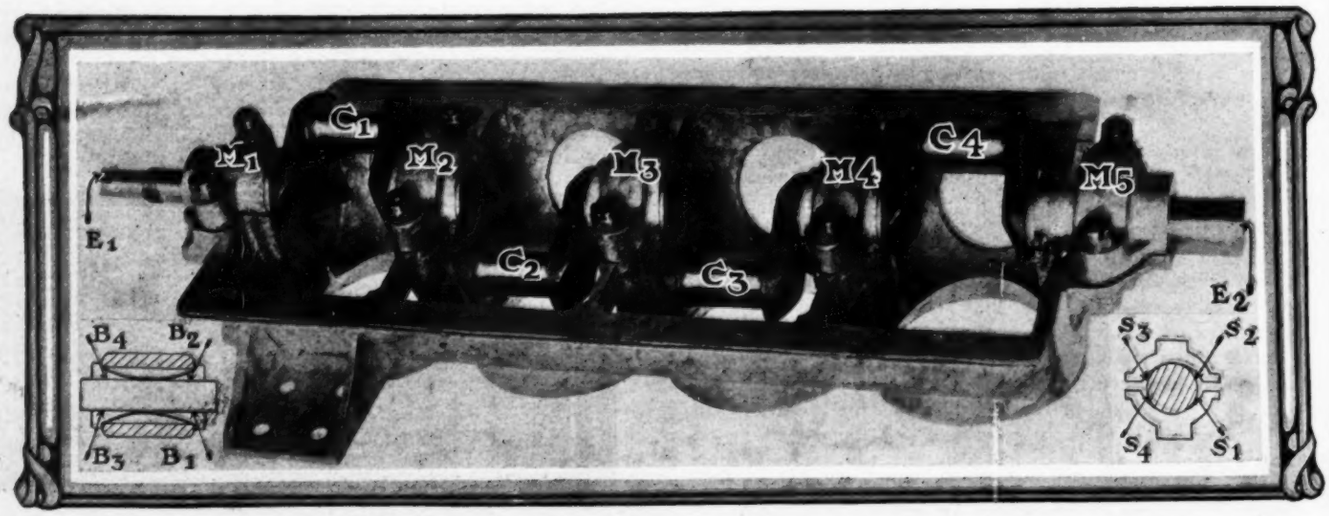



Fig. 3—Crankshaft in place after bearings were scraped in and liners reduced to requisite thickness to let cap down to contact

### LINERS ARE NOT ALWAYS USED IN CRANKSHAFT WORK

When the two halves of the "brasses" are so accurately made that they come together properly, which should show in the trying process with blue on the journals, it is not necessary to consider the use of liners. If the fit is not "neat," then it is necessary to employ liners, and in this practice it is better to allow for them beforehand, and use several thicknesses of suitable material for the purpose. Paper is frequently employed, it being the case that "detail" paper, such as is used for detailing out work in the designing office, comes in several thicknesses, ranging from 0.005 to 0.015 inches, and with this selection of thicknesses it is possible to arrive at a good fit in a short time.

While paper works very well indeed, and seems to stand up under service conditions, even so many motor repair men prefer sheets of copper, using them of two or three separate thicknesses to facilitate arriving at a good fit of the bearings. This method would naturally be more satisfactory to a car owner on the ground that he might then be able to tighen up the bearings (without going to a repair shop), in the due course of time, by the simple expedient of removing a liner; if there are several, and all of a different thickness, he may then take his choice of them, removing the ones which will afford the nearest to what he might be willing to designate as a good fit of the bearings.

### WHITE METAL USED IN CRANKSHAFT WORK

The average repair man must rely upon the vendors of Babbitt metal for the quality of the material, and yet when all things are considered, the two horns of the dilemma are: (a) The requirement is the most exacting of all applications of this class of material. (b) Babbitt is the most varied metal which it is possible to purchase.

It is a trick worth noting, the method by which clever repair men "fetch up" inferior Babbitt so that it will serve in a crankshaft job with reasonable certainty. The process consists in purchasing the best babbitt, according to the fellow who keeps all his grades in one bin, and after receipt melt down in an iron pot enough (nearly) to do the contemplated repair. When the Babbitt is at a fairly high heat (so that it "sparkles" the charcoal which is placed as a powder over the surface to prevent oxidation), tin is added in quantity sufficient to render the metal "cold short."

It is easy enough to ascertain when the right amount of tin is added; the metal (a little of which can be taken from the pot in a ladle, and quenched in water), will then fracture readily. It is not necessary to bring on an excess of the condition designated as "cold short," but it is better to do so than to let the metal go without enough tin in it to bring it up.

Instead of dealing with this relatively inferior white metal, even when it is tin corrected, it is better to have on hand a quantity of Fahrig metal, Parsons bearing metal, or other equally good material of this character as used in motor crankshaft bearings. Fahrig metal, according to analysis by Robt. W. Hunt & Co., is composed of:

#### CHEMICAL COMPOSITION.

Tin, 90 per cent.

Copper, 10 per cent.

This analysis is subject to such variations as will naturally creep in by way of such impurities as reside in copper and tin; the total of the impurities makes no great difference in this class of work.

In working this metal, in order to realize proper results, it is necessary to heat it to a dull red heat. This is extremely important, and many failures are directly due to pouring at a low heat.

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# PRIVATE GARAGES SHOULD LIMIT THE FIRE HAZARD

EVERY district has its special fire risk, and the insurance question is looked after by local boards of fire underwriters, who have in mind the local conditions and the fundamental risk involved; no set of rules, under the circumstances, will serve for every case, and when private garages are projected it is well to consult the local board, as well as to file plans with the "building department" having jurisdiction. In a general way, even though absolute rules may not be given, it will be possible to offer a set of rules such as will afford an insight into the intricacies of the requirements, and enable the prospective owner of a private garage to appreciate the necessity of proceeding with care and discrimination.

**Ashes** must be cared for in metal cans.

**Blower system** must be provided with metal conduits connecting each machine with shaving vault, such conduits passing to the outside of building at each floor.

**Boilers** must be outside of building, or if located in extensions, must be cut off by standard fire door. In wood-working establishments a door must be provided at each side of the communicating opening.

**Buckets**—There must be two buckets of at least 10 quarts on each floor, including basements, for each 1,000 square feet of floor area, same placed on permanent shelves, hooks or racks elevated not less than 2 feet nor more than 4 1-2 feet above the floor. Buckets to be painted red and marked "Fire" with letters not less than 2 1-2 inches in height, to be kept full of clean water and inspected once a week. If water in buckets is likely to freeze in cold weather, enough salt to be mixed therewith to prevent freezing. In rendering establishments, paint, oil and varnish stocks, or any other place where inflammable liquids form part of the stock, one-half of the number of buckets must be filled with sand instead of water. Wooden buckets will not be accepted.

**Ceilings or side walls** must not be paper or cloth or wood.

**Communications** must be provided with standard fire doors at each side of the wall constructed and installed in accordance with rules of the New York Board of Fire Underwriters.

**Condition**—Premises must be cleaned up and kept clean. Stove pipe holes must be closed up. Sawdust must not be used in spittoons or for catching oil or drippings. Broken plastering must be repaired.

**Drying**—Drying rooms must be constructed in accordance with the requirements of the New York Board of Fire Underwriters.

**Fire Heat**—Glue must be heated by steam. Melting of pitch, rosin, wax, paraffine, sulphur, etc., must be by a safe method. Soldering irons must be heated by stationary gas mufflers. All low gas stoves shall be placed on iron stands or the burners shall be at least 6 inches above the base of the stoves and a metal guard placed 4 inches below the burners and all wood work under them shall be covered by metal. Connections must be made by iron piping; rubber tubing must not be used.

**Flues**—Chimneys must be built of brick and rest on the ground. Stove pipes must run horizontally into the chimneys. Stove pipes must not run through floors or partitions.

**Floor Openings**—Openings for stairways, elevators, dummies, etc., must be closed or enclosed so as to prevent the spread of fire from floor to floor. Dumb waiter shafts open in the basement must be provided with the same kind of doors as floors above. Hatches with automatic attachments must be arranged to close the shaft even when the car cable is down, with not over 2 square inches of uncovered opening.

**Gas Brackets**—Open gas lights in show windows must be protected by globes. Swinging gas brackets must be made stationary or proper guards must be provided for same. Metal must be put on ceiling over all gas jets less than three feet below same.

**Heating**—Steam heat must be substituted for stoves or furnaces to secure removal of charge for latter.

**Lighting**—Gas or electric lamps must be substituted for oil lamps.

**Oily Waste or Rags**—Must be cared for in self-closing metal cans.

**Packing Materials**—For loose packing materials wherever used a covered bin must be provided, not larger than 4 x 4 x 4 feet (64 cubic feet) lined with heavy tin extending well over edges of the same, joints locked and tin nailed under joints in the same manner that the covering is applied to standard fire doors. Cover must have substantial fastenings and fit closely.

**Shaving Vault**—Must be of brick, ventilated, and located outside of building. If adjoining boiler house the opening to boiler room must be at right angles to fire hole of boiler and not nearer thereto than six feet; such opening to be protected with fire door.

**Shutters**—All openings (windows, etc.) in exterior walls excepting those on street front, must be provided with fire shutters or doors constructed and attached in accordance with rules of the New York Board of Fire Underwriters.

**Skylights**—Must be of rough glass 1-2 inch thick (wire glass preferred) supported in substantial metal frame, but when over elevator shafts thin glass in metal frame with wire mesh over should be used.

**Storage of Oils, etc.**—All oils, varnishes, turpentine, alcohol and similar articles must be stored outside of buildings.

**Unsafe Heating Apparatus**—Flues, stoves, furnaces, steam pipes, etc., reported unsafe by the New York Board of Fire Underwriters must be corrected in accordance with the specifications of the Heating Department of that Board, which will be furnished on application to the Board, and which must be signed and returned when fully complied with.

**Watchman and Clock**—Watchmen must be maintained nights, Sundays and holidays, or all the time when property is idle. Watchmen must patrol the property, making records once each hour on an approved clock, records to be dated and preserved in good order for examination by inspectors.

**Watchman's Lantern**—Must be of protected tubular make and only signal, lard, or sperm oil shall be used therein.

## CYLINDER OIL CONGEALS

Editor THE AUTOMOBILE:

[2,139]—This is my first offense, but it seems serious enough to risk asking about. I have been draining my water system—I have a four-cylinder water-cooled automobile—this fall, but find that with this cold snap and the thermometer going to six degrees below, and seldom getting higher than 20 above during the day, that the oil in the cylinders congeals to the extent that I cannot turn the engine over, unless I fill the engine with hot water. I now have a supply of denatured alcohol on hand and propose to keep it right along, so will not have to drain every time, but while it will not freeze, it will no doubt get as cold in the cylinders as before. So, what can I do to make the engine turn over more easily? I keep my machine in a barn wtih a cement floor, without any heat, and it gets pretty cold these mornings. I have been taking "The Automobile" only a few months, but you have a life subscriber in me from now on!

Clinton, Mo. E. T. MONTGOMERY.

Aside from selecting the oil with care, so as to obtain one which will remain liquid at the lowest temperature encountered, there is very little that you can do, unless you want to install a heating system in the garage. This latter would be a very wise move as it will not only insure against a repetition of the trouble of which you speak, but will also result in the machine being kept in better condition at all times, as there will be hot water at all times, to wash it off, while the garage being heated will insure a comfortable place in which to do repair work and make adjustments. All these things contribute to the longevity of the machine, and can be measured in actual dollars and cents. If you were to look into the cost of installing a simple heating arrangement, you would be surprised at its lowness. If the barn is small, a simple stove will do the work, and this only needs to be kept burning during the night, at which times a very low fire will answer the purpose. If the barn is very big, a stove with some very simple piping around the room will do the work.

It would seem as if the time you waste every time you want to take the machine out, would be worth something to you. Capitalizing this, won't you find that you are money in pocket in installing a heating system?

## TO INSERT PISTONS

Editor THE AUTOMOBILE:

[2,140]—How can you replace the piston in a single-cylinder engine when it is taken out at the top? The rings catch. I have asked many experts, have bought all the books on kinks in repairing, and still cannot seem to get the piston in. When the cylinder is taken off and the piston removed through the bottom it is an easy matter, it can be entered by springing each ring with the hands, when entering it into the cylinder, but I cannot replace it when taken out through the top.

Mooers, N. Y. W. U. TAYLOR.

This repair may be effected by the same method as is used to remove rings from a piston; that is, by the use of very thin, flat pieces of steel. Only, in the removal of the rings, the steels are inserted below the rings, while in the insertion of the piston and rings into the cylinder, the steels are set around the outside.

Make or obtain three or four very thin flat pieces of steel, the thinner the better. Place these around the piston and rings, which should be in place as well as the connecting rod, spacing them equally. Then with a rubber band, string, or something of that sort, spring the rings in close to the piston, as close as is possible, paying particular attention to the lowest ring.

Now insert the whole outfit into the cylinder through the open head, down as far as you can, which will doubtless be down to the bottom ring or the lower end of the flat steels. Then draw the steels upward slowly so as to partially uncover the lowest ring, say so as to uncover about half of it, at the same time forcing the piston into the cylinder. If the steels hold the rings into the grooves in the piston as they should, the lower ring will enter the cylinder bore. Then the steels may be drawn off of that ring entirely, and the piston pushed down until the next ring catches. Draw the steels up so as to half uncover this and repeat the performance described in connection with the first ring. This is simply repeated with each one of the rings, no matter how many you have, and should be successful in every case if manipulated rightly.

## CARE OF TIRES IN WINTER

Editor THE AUTOMOBILE:

[2,141]—How is the best way to care for tires during the winter when the car is not in use? Should tires be washed clean when put away for the winter, or does water injure them? G. G. S.

Annandale, Minn.

When the use of the car is given up for the cold weather season, the car should be jacked up off of the tires, some air let out of them so as to reduce the pressure, and the whole washed very thoroughly, particular attention being paid to the removal of all traces of oil. Contrary to your implied idea, water does not harm the tires or the rubber composing them in the least, but oil and gasoline do. In case you wish to go into the matter a little further, and do a more thorough job of putting them up for the winter, proceed as follows:

After washing thoroughly, take the tires off of the wheels, take the tubes out of the shoes, paint the inside of the shoe and the outside of the tube with graphite, wrap both very carefully in cloth or heavy paper, paper over cloth being the best, then store in some dry, dark place, preferably where the temperature is very even all winter and not far from 30 deg. Fahr. Light is a great enemy of rubber, as is also heat; by putting the protective covering around the tires, then keeping them away from light and heat, there will be absolutely no deterioration, no matter how long they may be kept put away. This method of procedure is really worth the time it takes.

## SAFE MAXIMUM SPEED

Editor THE AUTOMOBILE:

[2,142]—In your column of "Letters Interesting, Answered and Discussed," will you please give the maximum safe speed at which the average automobile engine may run. In other words, what is the greatest speed that the magneto of such a motor may have to stand? We have had an instance here of a Bosch armature being "shot" by racing the motor to get out of a "stall." Of course, this speed was excessive, but is not the magneto designed to stand such speeds?

Sumter, S. C. C. T. MASON.

In the usual case, the speed of the motor is only limited by the ability of the cast-iron flywheel to withstand the centrifugal force at that speed. The safe allowable linear speed, based on a liberal factor of safety, is about 6,000 ft. per minute. This, then, governs the speed, as knowing the diameter, it is a simple matter to get the circumference in ft. Then by dividing the safe linear speed per minute by the circumference, you get the safe allowable speed in revolutions per minute. Thus, to give a specific case, take a flywheel of 17 in., an ordinary size. The circumference of this in ft. is 4.45. Then, for a 17-in. flywheel the safe allowable speed is $\frac{6{,}000}{4.45} = 1{,}348$, or, in round figures, 1,350 r.p.m.

This, however, is figured with a factor of safety of 10, so that it may be exceeded slightly with safety. Using smaller flywheels, the speed may be increased in proportion, while with steel for the material instead of cast iron, the rotative speed may be increased in the ratio of the strength of the two materials.

The following speeds of a number of French engines are of interest as bearing on the subject, indirectly; De Dion, 1,400; Farcot, 1,500; Chenard-Walcker, 1,500; Darracq, 1,500; Sultan, 1,600; Renault, 1,600; Unic, 1,650; Sizaire-Naudin, 1,700.

Each and every one of these, to the best of our knowledge, is ignited by means of magneto, so that this list would seem to answer your question, at least as to safe practical speeds.

However, for racing purposes, the magneto is also used for ignition, and there these speeds are exceeded. Thus, the Arrol-Johnston (English) four-inch racer was tested up as high as 2,400 r.p.m., and is ignited by magneto, so that this rotative speed should be safe for the magneto armature. The English Napier is now magneto-ignited, and for the six-cylinder engine a rotative speed of 3,000 r.p.m. is claimed to be not only possible, but usual practice.

In your case, something else must have been the matter, as we have never heard of this trouble before.

# ANSWERED AND DISCUSSED

## BISSELL'S NEW HELICOPTER

Editor THE AUTOMOBILE:

[2,143]—The writer has been reading all you say in "Letters Interesting" about aeroplanes and begs to inclose herewith a sketch of a combination helicopter, aeroplane, parachute and gyroscope, all in one to make her safe, sane and reliable. The engine is at the bottom where it ought to be, and the "gladiator" sits in the middle behind the vertical shaft, where he is protected from all shocks and accidents. The propeller on the front is universal and can be turned in any direction. There are two guide planes in front of it, one smaller so if there is a severe side wind the planes can be reversd. The large plane is horizontal and the small one vertical. The guide handle also twists to tighten up on a leather strap that wraps around it and thereby push down on the spiral spring to loosen the belt that runs the front propeller so that all the power can be transferred to the vertical propeller which has adjustable blades.

One man can operate the whole thing himself. He gets on the seat, reaches up and gives the flywheel a whirl to start the engine, then he twists the little hand-wheel above his nose which controls the roof blades, and the machine rises. Then he lets go on the clutch and starts the pulling propeller, turning it well to the left side so he won't turn around himself, and gradually bringing this steering handle back to a position in front of him as the machine gets under way.

As there is very little head resistance this should be a fast machine. It can't be upset for obvious reasons, and the data already available indicates that a 20-horsepower engine would be sufficient to make it fly, as the whole apparatus, including a man and ten or fifteen gallons of gasoline wouldn't weigh over 400 pounds. Kindly advise me what you think of the scheme. "T. K."

Pittsburgh.

Another case where the proof of the pudding is in the eating. The only way to tell whether your machine is any good is to make one and try it. We doubt, however, if you appreciate the difficulties of using a single vertical propeller. With any sort of a propeller, there is just as much tendency for the propeller to stand still and the machine go around, as there is for the machine to stand still and the propeller go around. Apparently you intend to overcome the tendency of the machine to go around by means of the front propeller. It would be much more economical of power, though, if you used the vertical propellers turning in opposite directions, or other means of balancing the tendency directly.

We would like to know how you worked out the proportion of power to weight, and what authority you have for assuming that 20-horsepower acting on your vertical propellor will give a thrust of 400 pounds. Your weight, too, is doubtful. With a 160-pound man, an engine which cannot weigh less than 100 pounds, and 50 pounds of gasoline, you have but 100 pounds left for the framework and the propellers. The 80 feet of steel tubing in your fly-wheel-propeller rim will weigh more than that alone. A little consideration of the design, reproduced below, would seem to show that the inventor had not given enough thought to a number of salient points. As for instance, the adjustable blades at the rear, how do they clear the front end mechanism?

## NO KEROSENE USED

Editor THE AUTOMOBILE:

[2,144]—We desire to call your attention to article on page 1049 of your December 16 issue, under heading "Troublesome Carbon."

Replying to "F. H. T.," would say that he will have absolutely no trouble in getting his car started if he will immediately after cleaning one cylinder start the engine, and if the same is a four-cylinder car the three cylinders will be in working order and will soon get the fourth cylinder to firing properly. If the engine is started after each cylinder is treated with Prest-O-Carbon Remover there will be no trouble whatever in keeping the engine going and it will certainly clean out every particle of carbon. What we are especially interested in is your statement at the bottom of the column stating that it is believed to contain kerosene in large amount. Now we want to particularly caution you against making a statement that you know absolutely nothing about. As a matter of fact, there is not a particle of kerosene in Prest-O-Carbon Remover. We absolutely guarantee it in every way to do the work we claim it will do. We believe you realize the Prest-O-Lite Company has got too good a reputation and too large a business to try and push the sale of anything that is not high-class in every particular.

THE PREST-O-LITE COMPANY,
J. A. ALLISON, Secretary-Treasurer.

## FULL VS. SEMI-ELLIPTICS

Editor THE AUTOMOBILE:

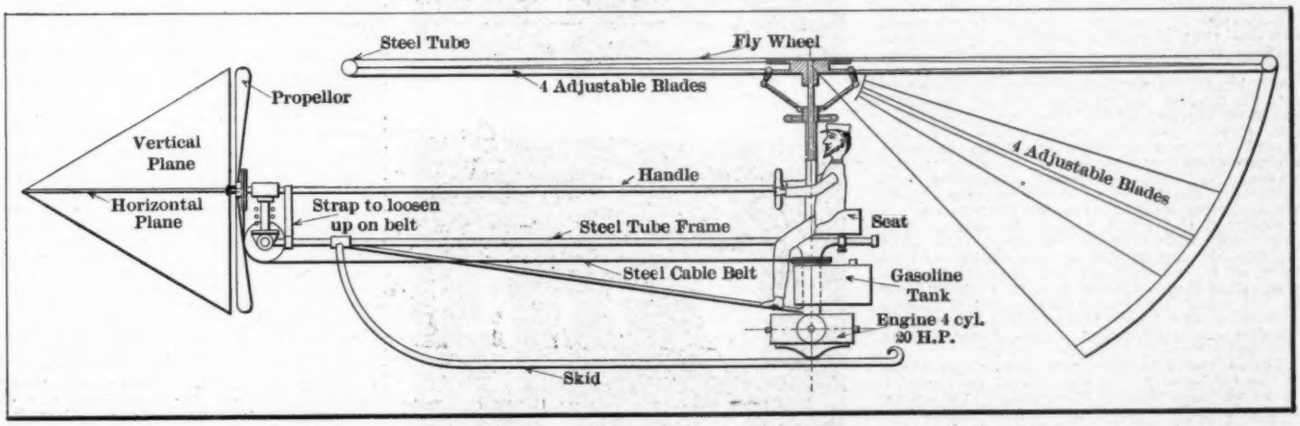
[2,145]—Will you please tell me in your columns why full elliptic springs are not in use more than they are. I had a car last year with full elliptic springs which rode very easy; this year I have a new car with semi-elliptic springs and a longer wheel-base and I feel the bumps much more. I intend changing for a new car with full elliptics unless I learn of some serious reason why they are faulty. C. F. H.

Milwaukee, Wis.

The relative advantage of full and semi-elliptic springs is one of the questions in automobile design which are still far from having reached a definite status. It seems as though a great many makers have decided to compromise on the three-quarter elliptic. You are mistaken in assuming that the difference in riding qualities in your two cars is due solely to the different types of springs. It is just as easy to make an easy-riding semi-elliptic and a hard-riding full elliptic as the reverse; and if you buy another car selected simply because it has full elliptics, you will run a good chance of being "stung" again. The difficulty is not in the type of springs, but in the proportioning of their stiffness to the weight of the car and its load.

Before going so far as to get another car, we think you had much better see what can be done to improve your present one. If the springs seem short, compared to those in use on other cars, it may be possible to arrange for longer ones. Shock absorbers, of one of the many types on the market, might do the trick, or a set of new springs of more or fewer leaves. The cost of such additions or alterations would be insignificent compared to the cost of a new car, and, if the present machine suits you in other respects, might be much more satisfactory in the end. If you will tell us the type of your car (runabout or touring), its weight, the length and width of the springs and the number and thickness of the leaves, we will be glad to advise you more definitely.

Or, it is possible that some spring maker will be glad to take the matter up with you, pointing out where the present spring suspension is defective, how it may be remedied with the least trouble and expense; also, the total expense.




Drawing Showing Construction and Operation of Bissell Helicopter, Described Above

## BEST WAY TO CRANK

Editor THE AUTOMOBILE:

[2,146]—I have noticed in your issue of December 2 that C. S. J., of Paterson, N. J., is experiencing some difficulty in cranking his Lozier car, and he asks for some suggestion on how to overcome it.

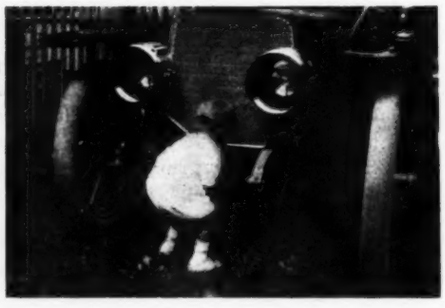
I do not understand what the difficulty can be, because I own both a four-cylinder Lozier "Briarcliff" and a six-cylinder Lozier touring car, both of which I can crank with ease; and if C. S. J. will follow out my instructions, as given by the accompanying photographs, I believe he will have no further trouble.

I trust that these photographs will be of interest both to you and to your correspondent. GAYNOR KEELER.

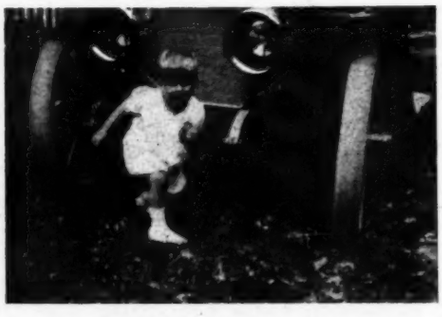
Albany, N. Y.

The photographs, which we gladly show in the adjoining column, certainly reveal no alarming difficulties. Moreover, they illustrate, better than anything we have ever seen before, the one and only right way to crank a car. Nearly everybody knows by this time that the compression of the motor should be overcome by pulling the crank up, rather than by pushing it down. For this should the motor backfire, in the former case the crank would simply be jerked from one's fingers; while in the latter the shock would come against the rigid arm, and, if the arm should bend, the crank would be likely to hit the cranker on the jaw. The advantages of cranking left-handed are not so plain. It will be seen, however, that if after the suppositious backfire the crank should swing completely around, in the left-handed case the jerk would tend to throw the arm out of the way; whereas right-handed the arm would be thrown directly in the path of the return swing, and would receive a painful bruise, if not a broken bone. Another reason is that, owing to the direction the crank turns in, one can brace better for the upward pull when the crank is in the left hand.

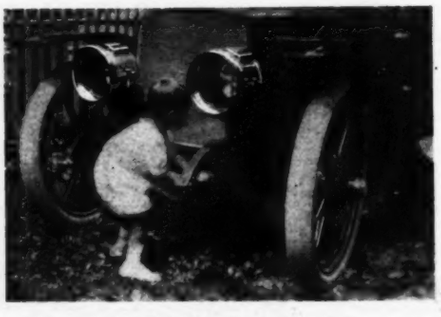
Grasp Starting Crank in Left Hand;



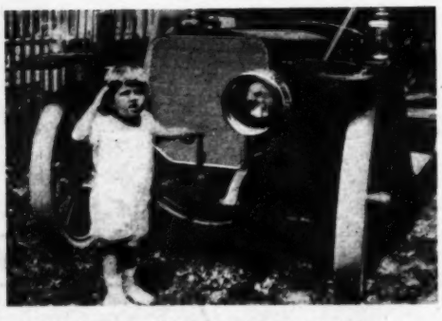
Next, Push the Crank In;



A Pull Upward Throws the Motor Over;



Then—Listen! There She Goes



Now, No Use Arguing the Matter

## LIKES STORAGE TANKS

Editor THE AUTOMOBILE:

[2,147]—Referring to the article entitled "The Private Garage Problem," by M. A. Hall (pages 1083-1086), in your December 23, '09, issue, in which Mr. Hall makes some suggestions about underground gasoline storage tanks, permit me to make some comment thereon.

While extremely valuable to the motorist of moderate means, Mr. Hall's suggestions on storage tanks are apt to be somewhat misleading to those not thoroughly familiar with the strict requirements of insurance companies and municipal ordinances as to the storage of gasoline. One of these rules, and one that is rigidly enforced, is that forbidding the storage of gasoline under pressure.

Mr. Hall's seeming preference for air pressure in forcing the gasoline out of the storage tank instead of the slow, uncertain suction pump, has the writer's heartiest approval. Of course there are some splendid double-action continuous-flow pumps on the market, but they are rather expensive, and since the idea is to cut down expense, these higher priced pumps must be eliminated.

Now for the point I wish to make. The two cocks shown in the diagram (the inlet for the air and outlet for the fluid) are all right so far as they go and permit the flow of gasoline to be stopped instantly—BUT they do not allow the compressed air left in the tank to escape, hence the gasoline in the tank remains under pressure, which is contrary to the regulations I have mentioned.

The writer has seen this defect overcome in the equipment of a one-barrel tank which he purchased from a Pittsburgh, Pa., firm. Stopping the pump stops the flow of gasoline after which a small cock (attached to the outlet pipe of the pump) is opened and permits the air to escape. The main air-cock is then closed and locked to prevent leakage or pilfering. Supplementing Mr. Hall's suggestion, I might state that the whole outfit did not cost more than the home made one would with the added assurance that it conforms absolutely to insurance and municipal requirements.

Mr. Hall's statement that a garage without this equipment loses money for its owner is borne out by comparisons of my own gasoline costs before and after the purchase of the tank. Apart from the great saving in this direction, the refilling of the car tank is no more trouble than drawing a pail of water from a water faucet, and most car owners know what that means. T. M. DAY.

Pittsburgh.

The writer above missed the point that it was possible in the design shown to open the air supply cock, allowing the air pressure to escape, when desirable or necessary.

## MAGNETOS ON AEROPLANES

Editor THE AUTOMOBILE:

[2,148]—In your issue of December 23 we find a news paragraph under the caption, "Now an Aeroplane Magneto." It may be of interest to you to know that the use of "Now" in that headline is rather misleading, for several special magnetos for aeroplanes, with certain parts built of aluminum, have been made and used with success by the Bosch Magneto Company for considerably more than a year. Moreover, a magneto of power which weighs as little as 11 pounds has been among the models of Bosch magnetos for several more than 12 months.

But it must be borne in mind that in spite of some demand for magnetos of light weight for aeroplane use, there are some masters of the air who are not particular about what their magnetos weigh. On this subject Mr. Wilbur Wright, when interviewed a day or two before his historic flight up the Hudson, said "a heavy magneto which helps develop one-quarter more horsepower is all right; and I am perfectly willing to take a few more pounds handicap provided I can get the extra one-quarter horsepower." These remarks of Mr. Wright's were brought out in discussing two models of Bosch magnetos which he was using. One, a rather small magneto, was a new Bosch device with which he was experimenting.

On the subject of aeroplane ignition, you will doubtless be interested in the reports covering the ignition of the aircraft at Rheims and Brescia. From complete data and records in our hands covering these two meets we have compiled the following data:

At Rheims the four great prizes were won by Bosch equipped aeroplanes. Curtiss took the Gordon Bennett Cup and the Prix de la Vitesse; while Farman with his Gnome motor which is Bosch equipped captured the Grand Prix de La Champagne et de La Ville and the Prix des Passagers.

Of twenty contestants in these four contests the motors of eight of the aeroplanes were equipped with Bosch magnetos, seven with batteries and six with other ignition apparatus.

At the Brescia meet Curtiss won the Grand International Prize de Brescia and another minor prize; while Calderara with his (Italian) Wright Bosch-equipped biplane captured four prizes. In other words, six of the nine events were won by aeroplanes equipped with Bosch magnetos, and these contests included prizes for starting, passenger carrying, circling, high flying for the day and other special prizes for the varying lengths. The results show that the Bosch ignition was found efficient and serviceable in all sorts of contests and under greatly varying conditions.

In both of these meets it is interesting to observe that the Bosch magneto was the ignition most favored, while the use of batteries was next in popularity, but not a single prize was won by an aeroplane which depended on batteries, and of the 13 prizes of the two meets (Rheims and Brescia) 10 prizes and trophies were won by aeroplanes equipped with Bosch magnetos; the other three prizes were won by Rougier with a Voisin aeroplane with Gibaud equipment.

While what has been is of interest to every one connected with the aeroplane industry, what is going to be is of no less importance, and an illuminating side light on the enormous growth of the aeroplane industry may be gained from the fact that orders for 700 Bosch magnetos for 1910 aeroplanes have already been booked. Of course, these 700 magnetos are not for American use exclusively, but include the orders of French, German and other European aeroplane makers.

BOSCH MAGNETO COMPANY.
Per Harlow Hyde.

# SOME PRESENT TENDENCIES OF MOTOR DESIGN

By E. R. THOMAS, President, E. R. Thomas Motor Company.

THE advent of the automobile was made possible only by the development of gas engines of extreme lightness. An automobile engine usually weighs some 15 to 18 pounds per "A.L.A.M." (or conservatively rated) horsepower, as compared with about 320 pounds per horsepower in the old stationary types of gas engines.

During the past five years the automobile has undergone great development, and at an unprecedented speed, a phase which every new machine is obliged to pass through. It has been improved in quality and cheapened by the natural method of elimination of the more unfit constructions. This process is still going on, but at a slower pace than formerly.

The motor has been quieted by attention to the valve-operating mechanism, to the carbureter and to the exhaust line. It has been given remarkable flexibility by improvements principally in the carbureter and valve setting, and the magneto has come into its own as the most reliable source of ignition current. The radiators have been strengthened and increased in cooling efficiency. The cylinder jacketing and lubrication have been cared for in such a way that there is no longer any excuse for an overheated motor.

In the transmitting system the old cone clutch has been greatly improved, and the newer disc types have been developed, almost to perfection, our own patented three-disc clutch, I believe, being about as perfect as a disc can be.

Through the use of special material and of special tooth forms, together with the annular type of ball bearings, gear boxes have been reduced in size and silenced. The sliding gear has practically eliminated all other forms of transmission. The live rear axle, with entirely enclosed driving mechanism, has been developed from a most uncertain mechanism to one of the most positive and reliable units in the car.

As regards the running gear, the pressed steel frame came into being but little more than five years ago, and was seen only on one or two cars for several seasons. It is now universal, its advantages from the standpoint of strength, lightness and cheapness being now thoroughly understood.

For front axles the one-piece drop forging and I-beam section has taken the place of the old built up tube or hand-forged rectangular section.

The springs, especially in the rear, have been lengthened, flattened and made of better material, with corresponding increase in comfort, especially at high speeds.

The wheels, apart from the hubs and tires, have undergone less change than any other important element, but, considered as a whole, the adoption of drawn metal hubs, roller and ball bearings, together with detachable rims, have modified this unit very appreciably.

In this way it may be said that every portion of the automobile has been improved by men who had made this type of part a study for years before the advent of the automobile, and who thus were peculiarly well placed to help the automobile engineer in his work.

To the large automobile manufacturer belongs the credit of having the foresight and daring to invest large sums of money in a new industry replete with pitfalls, and thus providing the engineer with the means of working out his problems. That the American is able to compete with and even beat the foreigner was conclusively shown when a Thomas stock car beat the best that Europe could produce in the New York to Paris race.

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# ENFORCEMENT MORE NEEDFUL THAN MORE LAWS

By H. H. FRANKLIN, President, H. H. Franklin Manufacturing Co.

UNQUESTIONABLY the incoming Legislature will undertake to modify the existing motor vehicle law. There is so much interest in motor vehicles that users, manufacturers and legislators will consider that they should undertake to do something in motor vehicle legislation. What all should recognize is that the public does not need a new law, or more law, so much as it needs an enforcement of present law.

Against the operation of the present law, the great complaint is that of reckless driving and the consequent killing and maiming of innocent people upon the highways. The trouble is not that the speed restrictions are not severe enough, or that the penalties for their violation are not heavy enough, but that public officials do not exercise the power which the law gives. If a driver operates "a motor vehicle on the public highway at a rate of speed greater than is reasonable and proper, having regard to the traffic and use of the highway, or so as to endanger the life and limb of any person, or the safety of any property," he is guilty of a misdemeanor and liable to a fine of $100 for the first offense; for the second offense to a fine of $100 and 30 days' imprisonment; and for the third to a fine of $250 and 30 days.

The law goes further and says that even if the speed of the motor vehicle is safe as to the traffic of the highway and does not endanger life or property, still at street intersections, at sharp curves and on bridges, etc., the speed shall not exceed four miles per hour, and in closely built-up portions of cities and villages shall not exceed ten miles per hour, and in other portions of cities and villages shall not exceed fifteen miles per hour, while in the open country, it shall not exceed twenty miles per hour; *i. e.*, the law says *first*, that the speed must always be safe, and *second*, that, whether safe or not, it cannot exceed the prescribed limits.

However, the law does not stop with the foregoing, but says that if any city or village is dissatisfied with the above provisions, by action of its common council or board of trustees, and by posting certain specified signs, it may provide for such lesser speed as it shall desire, except that such provisions for lesser speed shall apply to all vehicles and shall not be less than ten miles per hour in incorporated villages.

Is there any dissatisfaction on the part of the public with the speed restrictions of the present law? Clearly not. If dissatisfaction existed, it would appear in the cities of the State, where motor vehicle accidents principally take place; and if it did appear in the cities, it would manifest itself in a disposition to take advantage of the provisions of the law which authorizes any city of the State to make the speed limits whatever it sees fit, provided the restrictions are made to apply to all vehicles and provided the certain specified signs are posted. So far as I know, no city of the State has taken advantage of these provisions of the statute.

Is the law too lenient as regards penalties for violating speed provisions? Clearly not. If it were too lenient we would expect to find justices of the peace and courts of special sessions giving convicted violators of the motor vehicle law the full penalties prescribed. On the other hand, it is doubtful if a case can be found in the State of New York where the punishment of the convicted offender has been as severe as the law would allow.

If the speed provisions and the penalties for their violations are as severe as they should be, clearly there is nothing further that the public needs for its protection except the enforcement of the law. Enforcing the law will stop speeding and stop accidents more than all the amendments to the existing law and more than any new law that the Legislature can enact.

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## THE MOTOR WISE GRASP OPPORTUNITY

Dealers must dispose of the grist. The mill is grinding out automobiles on a basis of, perhaps, 280,000 this year. There is a good automobile for every one of the possible purchasers in this vast assortment by virtue of proper selection, but in the absence of care in making the distribution there may be a number of misfits.

The motor wise among the dealers are bound to take due cognizance of the great loss which the industry must endure, if, in the distribution of the product of the year, the automobiles and the purchasers are not in harmony with each other. No automobile is good if it is not suitable for the intended work, and the dealer, in selling a car, must ascertain if the service to be rendered is that which the car is capable of.

There is just as much possibility of delivering the wrong automobile if it costs the price of a house and lot as will be true of the cheapest automobile made, and, considering the future of the industry, there is every reason why the dealer should find that class of customer who will be able to utilize his make of automobile, and that, too, to excellent advantage. If there is a buyer for every automobile made, and apparently there is, then there is absolutely no reason why dealers should employ hypnotic methods—persuading beggars to sport diamonds is bad business. The idea that the purchaser must take care of himself may be a good dictum in general, and in law, but the automobile business needs all the prestige it can get from wise and fair dealing and that it is wise to overburden the camel is not so on the Great Sahara, nor can a copy of this idea be good for the automobile business—the purchaser totes the load in the long run.

## DISINTERESTED ENGINEERING ASSOCIATION

When H. E. Coffin assumed the high office of president of the Society of Automobile Engineers on January 13 for the year 1910, he engaged the attention of the members, interestingly, for a brief period in discussing the questions of the day, and among the matters of moment broached by him was that of advanced investigations as they relate to the automobile motor.

It was pointed out that many things in this regard are far from perfect, and Mr. Coffin said, "individual makers of automobiles will not be likely to accept the whole of the burden, on the score of cost." This question of cost of original investigation will best be appreciated when it is stated that $100,000 was expended in a single year on motor investigations only to realize that the subject was barely out of the primary grade at the end of that time and that it needed more attention.

One of the great advantages of original and disinterested engineering investigation is that the results will be at once placed at the disposal of all makers on a common basis, but the committee which was appointed by the Society to look into the matter of ways and means recognizes the difficulty from the financial point of view, and Mr. Coffin suggests that the Society may be able to collaborate with some university which has funds available for just this class of investigations.

Certainly the cost would be great were the Society to institute a laboratory, whereas the better-off universities are endowed with just such facilities, and it should be of great advantage to the student body were it in a position to rub pollen off the sleeves of veteran engineers, which would be a logical conclusion under an arrangement of this sort.

## GARDEN DELIVERED ITS QUOTA OF SUCCESS

Without attempting to analyze the statements of the officials who proclaim the show at the Garden as the greatest success of the industry; that the attendance was fully 30 per cent above that of last year, and that arrangements are now on for the proper launching of the next year's exhibition of the swollen A.L.A.M. membership (there are now 62 members), it is well within reason to point out than any of the earlier talk about abandoning shows is without the pale of a sane possibility.

The attendance, this year, was the buying kind, and this was adequately indicated by the weight of actual purchasing, not counting the possibilities and as is generally well appreciated, shows do not, as a rule, make a large number of sales on the premises. Autoists go there to see things, and to make comparisons while the opportunity affords. This year, for some reason which has not been explained, these same autoists were ready to make purchases, and that a good increase in actual sales were consummated is assured. The number of agency representatives who visited the Garden this year was far in excess of all previous showings, and that this means something to the makers of automobiles is also a matter which cannot be denied.

# S. A. E. HELD SECOND HALF OF ANNUAL MEETING

NEW YORK CITY, Jan. 13—The second half of the dual annual meeting of the Society of Automobile Engineers opened at 10 o'clock a. m. at the Engineers' Society's building, with an attendance which was regarded as very satisfactory indeed, numbering in its makeup many of the most enthusiastic of the men who are responsible for the high qualities of automobiles as they obtain in America at the present time.

When the ballots were duly counted, this having been the meeting which shouldered the pleasant duty of determining as to the personnel of the officers of the society for the ensuing year, it was found that a perfect accord of the members was indicated, and the officials duly elected were made known to be as follows:

### LATEST OFFICIAL MAKE-UP OF THE SOCIETY

President, H. E. Coffin; first vice-president, H. G. Chatain; second vice-president, Prof. Rola C. Carpenter; managers, H. Cunz, W. C. Wall and H. M. Donaldson; treasurer, A. H. Whiting (re-elected). Alexander Churchward is the society's secretary. This office is appointive.

According to the by-laws of the society, there are five past presidents to hold a position in the council; when the number exceeds five, one will be retired every year. As it is, considering the past presidents available, all are members of the council, they being as follows in the order of service: A. L. Riker, Thos. J. Fay, and Henry Hess, who just retired to make room for the new president.

### THE FUTURE OF THE SOCIETY LOOKS BRIGHT

When the new president took the chair, after passing over purely routine matters, he entertained the members present in divers ways, among which the question of the duties of such a society were discussed. The paper, by B. D. Gray, in relation to motor tests and methods of recording them, brought out many points of more than a little merit, and Mr. Coffin, in handling this discussion, pointed out that the cost of making tests, conducting original investigations and reaching satisfactory conclusions would be very great.

It was said, among other points which were brought out, that it is highly improbable that any single manufacturing company will be likely to stand the cost of such investigations, and to illustrate just what this means an example was cited, in which it appears that one company, desiring to ascertain more information about internal combustion motors, expended the enormous sum of $100,000 without exhausting the subject from its angle.

That there are many things to be ascertained before internal combustion motors will be on a basis of finality is now assured, and, as Mr. Coffin stated, "Few, indeed, are the concerns who have had time in which to go into the matter sufficiently to feel that motors are, even now, beyond swaddling clothes."

The committee on test, under the direction of B. D. Gray, as chairman, will handle the matter from a certain point of view, rather with the hope, perhaps, that purchasers of automobiles, when they desire to ascertain if the manufacturer, in any given case, is making a delivery in accordance with the specifications, will be in a position to determine (upon a standard basis of comparison) by having a test run, just what the real status may be.

This may look to the casual observer like a simple thing to do, but when all angles are contemplated it is so extremely difficult as to hold all the elements of a first-rate problem, even under the guidance of a special skilled committee, under the auspices of the first body of engineers in America, nor has this problem been solved by any of the older bodies of automobile engineers as they exist abroad.

### AFFILIATED MEMBERSHIP TO BE INSTITUTED

Last year, when the "International" grade of membership was established in the society, it was thought that about all avenues of utility from the membership point of view were closed. It has been found, however, that there is still room to expand, and the last effort in this direction is by way of an "Affiliated" member, the status of which will be gone into at a later moment.

The papers, as previously announced, were added to by a very interesting paper on the subject of transmission gears by Dr. G. W. Sargent, and, in view of another arrangement which the society has consummated in relation to the publication of papers, this paper will be given out at an early date.

The new arrangement, which is now assured, is one in which the society will spread broadcast all the facts, including discussions, as they appear in the very desirable papers which are read from time to time before the society. The new arrangement has the advantage of giving to the society an additional income, it being the cast that the principal automobile publications in America will take and pay for the matter on a fixed "minimum" basis, and, additional, on a word basis, for all above a certain minimum. The papers are of the greatest possible interest to those who have to struggle with the problems of the day, and they should prove of excellent value to autoists in general. This arrangement, then, kills three birds at one time; *i.e.*, engineers will have the information at their disposal, the society will realize an additional income, and autoists will benefit by closer contact with the engineering subjects of the day.

### A BANQUET ENDED THE YEAR'S ACTIVITY

In the evening, after the business of the year was concluded, the members and guests retired to the Engineers' Club, and at 7 o'clock were seated to a "spread' which proved to be one of the most enjoyable in the history of the society. At the appropriate instant the retiring president related the incidents of his year of labor, and, as might have been expected, the experiences were of an advantageous character, giving to the society many things which it wanted, and planning for the future the remaining matters which are to make the society large, influential and of the greatest advantage to the industry.

The membership has grown steadily, and to-day, counting "live" members, the society numbers upwards of 300 engineers, besides a fine showing of associates, internationals and possibilities. The idea of a neutral society of engineers of the automobile fraternity has proven to be well founded, and it is now assured that the society will grow and prosper; this alone is a matter of relatively large importance, considering the needs of the industry, it being true that everything should be subordinated to the question of the quality of the products which come from plants. That associated engineers will be able to do better than will be possible under any other way of proceeding is too sure to require discussion, but what is more to the point, this society has already made a "dent" in the quality of the automobiles made. The following members and invited guests attended the banquet:

H. W. Alden, Detroit; Joseph A. Anglada, Brooklyn, N. Y.; Bertram Bailey, Minneapolis, Minn.; Albert C. Bergmann, New York City; E. T. Birdsall, New York City; H. H. Brown, Boston; Rolla C. Carpenter, Ithaca, N. Y.; Henry Cave, Springfield, Mass.; Alexander Churchward, New York City; Howard E. Coffin, Detroit; H. F. Donaldson, New York City; Burton G. Ellis, Medford, Mass.; Thos. J. Fay, Brooklyn, N. Y.; Peter Fogarty, New York City; D. B. Gray, Providence, R. I.; Charles F. Herreshoff, Detroit; William Hesselkus, New York City; C. B. Hayward, New York City; William Herreshoff, Bridgeport, Conn.; Henry Hess, H. L. Hess, Jr., Philadelphia; M. R. Hutchison, New York City; Lindley Hubbell, Hartford, Conn.; W. P. Kennedy, New York City; William V. Lowe, Fitchburg, Mass.; Arthur R. Mosler, New York City; George C. McMullen, Buffalo, N. Y.; A. L. McMurtry, New York City; A. F. Masury, New York City; Frank Matheson, Wilkes-Barre, Pa.; Frederick S. Newman, Chicago; A. L. Riker, Bridgeport, Conn.; C. C. Reddick, Richard F. Russell, Brooklyn, N. Y.; G. W. Sargent, Reading, Pa.; A. J. Slade, New York City; Herbert L. Towle, New York City; H. M. Swetland, New York City; Allan H. Whiting, New York City; E. R. Whitney, Philadelphia; Clarence E. Whitney, Hartford, Conn.; Frank E. Whitney, Philadelphia; S. L. Wetherill, Philadelphia; Lawrence R. Whitcomb, Boston.

Invited Guests: G. K. Bradfield, G. G. Behn, F. E. Bright, W. J. Childs, M. J. Lathrop, C. H. Taylor.

## MEETING OF A. A. A. LEGISLATIVE BOARD

Eleven State associations of the American Automobile Association were represented in the session of its national legislative board, held at headquarters, 437 Fifth avenue, Wednesday of last week, and presided over by Chairman Charles Thaddeus Terry. Vermont, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Delaware, Ohio, Colorado and Nebraska were the States that supplied delegates, and a thorough discussion of the general legislative situation occupied several hours. Much time was devoted to the Federal Registration Bill and the National Legislative Convention which will take place at Washington, D. C., February 15, 16, 17.

The sole point sought to be effected by the Federal Registration Bill, as outlined by Chairman Terry, is to afford a motor vehicle user, after he shall have obtained his license to operate from the State of his residence, to procure from the Federal bureau in Washington a Federal license which will enable him to operate without the necessity of procuring any further license, or of paying any further fees, wherever he may choose to take his car. The bill does not in any effect interfere with States rights to regulate automobiles in all other respects, as to speed, signal devices, brakes and the like, and it leaves every State free to regulate the use of motor vehicles within its borders as it may choose in all these respects.

There was a thorough discussion of the question of the special taxation of automobiles, whether under the name of registration fees or license fees. It was the sense of the meeting that on principle there was no justification for charging automobilists for the use of their cars, anything more than such sum as should be sufficient to cover the cost of registration and the issuance of identification marks. Besides Chairman Terry those present were:

**Maryland**—H. M. Rowe, Automobile Club of Maryland.
**Massachusetts**—J. P. Coghlin, Worcester Automobile Club; A. E. Lerche, Springfield Automobile Club; R. C. Cooley, Springfield Automobile Club; W. A. Thibodeau, Auto Legal Assn., Boston; Francis Hurtibus, Jr., Bay State Automobile Association.
**Vermont**—S. S. Ballard, Automobile Club of Vermont.
**Connecticut**—C. H. Gillette, Automobile Club of Hartford; H. W. Weed, Automobile Club of Briageport; C. M. Robinson, New Haven Automobile Club.
**Pennsylvania**—Powell Evans, Automobile Club of Philadelphia.
**New York**—H. A. Meldrum, Automobile Club of Buffalo; Howard F. Martin, Albany Automobile Club; O. A. Quayle, Albany Automobile Club; Bert Van Tuvle, Automobile Club of Rochester; J. B. McMurrich, Oswego Automobile Club; H. F. Elliott, Bronxville Automobile Club.
**New Jersey**—A. G. Batchelder, Summit, N. J.
**Delaware**—John Bancroft, Delaware Automobile Association.
**Colorado**—G. A. Wahlgreen, Denver Motor Club.
**Nebraska**—D. C. Bradford, Omaha Automobile Club.
**Ohio**—A. J. Pray, Columbus Automobile Club.

## PROSPECTIVE LEGISLATION IN KENTUCKY

LOUISVILLE, KY., Jan. 17—Closely akin to the Wyatt-Bosworth amendment, providing for good roads, three proposed bills are to be submitted to the Kentucky General Assembly next month. One of the bills establishes the office of county road engineer and authorizes each county in the State to issue bonds to improve and build roads. The second bill creates a State department of public roads under the Commissioner of Agriculture. This will be headquarters where all contracts for road building and improvements will be drawn up and let to construction companies. The third bill provides for a fund to build and maintain roads in the State. This fund is to be established by means of a tax levy, the amount of which is to be fixed by the Legislature.

## OHIO AFTER LICENSE DELINQUENTS

COLUMBUS, O., Jan. 17—By orders issued by the Ohio State Automobile Department, all cars not provided with the mahogany tag of 1910 will be held up and the drivers or owners arrested for violation of the law. A grace of ten days has been allowed for all owners to secure their 1910 tags, and a large number have failed to take advantage of the extension of time. Hereafter orders have been issued for all owners to be prosecuted. Police will see that the law is obeyed.

## BRISCOE STRONG FOR GLIDDEN TROPHY

EDITOR THE AUTOMOBILE:

In view of the recommendation made by an official of the American Automobile Association relative to discarding the famous Glidden trophy and returning it to its donor, Charles J. Glidden, I take this opportunity to protest any such action by the Contest Board of the A. A. A.

I protest not only for the Maxwell concern, but for many other concerns holding membership in the Manufacturers' Contest Association and who have competed for this trophy since its presentation to the A. A. A.

To discard this classic touring trophy of the country at this time, after it has accomplished so much good for the industry, is, in my opinion, an extraordinary action and one which would be regretted not only by motor car makers but by the public as well.

Surely no automobile trophy ever competed for in this country has done so much toward the progression of the motor car industry, not excepting even the Vanderbilt Cup.

Donated in the early days, when the automobile was looked upon as the rich man's toy, it created enthusiasm throughout the territories through which the Glidden Tour was run; it showed the public in general that the motor car could accomplish all that was claimed for it; it demonstrated that the "horseless carriage" had become a permanent fixture in social and business life; it has done more than anything else to sound the death knell of the horse and its relegation to the farm; it has given manufacturers a superior opportunity to learn the strong and weak points of their cars, which could not have been learned under general touring conditions. This, in brief, is what the Glidden Trophy has done for the industry, sport and pastime, and it is this same famous classic trophy that certain interests would now bury in the historic archives of motordom!

The Glidden Tour is well known by the public at large, from Boston on the east to the Golden Gate on the west, and from the Gulf of Mexico to the Great Lakes. It is the public barometer as to what the various cars can do in endurance, mountain climbing, plunging through sand or gumbo, or speeding over macadam roads. The Glidden Tour has taken the automobiles through country hardly passable by horse vehicles, and has fully demonstrated that the motor car can accomplish what no other form of transportation can.

None of these would have been learned so rapidly if not for Mr. Glidden's generous offer in donating the famous trophy which bears his name. As a pioneer he certainly is entitled to any credit which may be his. Personally I believe that too much credit cannot be given him for his foresight and keen intuition of the benefits to be derived from an annual contest such as the Glidden Tour has developed into. I doubt if Mr. Glidden himself even dreamed what wonderful beneficial results would be accomplished for the motor car when he first donated the trophy.

To me it sounds inconsistent for this A. A. A. official to recommend the withdrawal of the Glidden Trophy and offer certificates in its place, when in the same statement he says: "At this time suitable resolution should be offered expressing the appreciation of our Association to the generous donor of the Glidden Trophy, and a committee appointed to present such resolution to Mr. Glidden, with power to arrange with him as to the disposition of this trophy. Too much credit cannot be given Mr. Charles J. Glidden for his generosity and foresight in offering this trophy which has made it possible for this tour to become an event of national importance."

In other words, the recommendation is made to withdraw the trophy when in the same breath it is conceded that in offering the trophy Mr. Glidden "has made it possible for this tour to become an event of national importance." Let us keep the trophy and continue it in the high place which it has earned.

BENJAMIN BRISCOE,
President Manufacturers' Contest Association.

## A. A. A. CONTEST BOARD IS BUSY

The new contest board of the American Automobile Association is bending every effort toward the rounding out of the projected racing circuit for 1910, and it will be its endeavor to make a schedule of meets and contests in such a way as to avoid long jumps for racing teams. The middle West and South will doubtless figure prominently in the schedule. Both Atlanta and Indianapolis have speedway promoters with ambitious plans for the year. The Southern Motordrome managers figure on two or three sets of dates, while it is said that Savannah plans some sort of a successor to the grand prize race of Thanksgiving Day, 1908. Indianapolis, according to report, has applied for dates that will include Memorial Day, July 4th and Labor Day. In the East it is said that Brighton Beach will be the scene of four 24-hour races, while the Vanderbilt Cup contest has been timed to occur about the beginning of October.

# A. L. A. M. NOW LICENSES SIXTY-TWO MAKES

At a well attended meeting of the board of managers of the Association of Licensed Automobile Manufacturers January 13, with President Clifton in the chair, Col. George Pope, chairman of the show committee, in his report stated that all records had been broken by the A. L. A. M. Show at Madison Square Garden this year, the daily attendance showing an increase of 30 per cent over former years. He announced plans for housing the big A. L. A. M. membership in the Garden at the 1911 show.

Alfred Reeves was unanimously elected general manager of the association. He was formerly general manager of the American Motor Car Manufacturers' Association, a majority of the members of which have joined the A. L. A. M. Coker F. Clarkson, who has been assistant general manager of the A. L. A. M. during the past year, will continue in this position.

The American Motor Car Company, Indianapolis, Ind.; Dorris Motor Car Company, St. Louis, and Mack Bros. Motor Car Company, Allentown, Pa., were granted licenses under the Selden patent. There was a number of other applicants for licenses, but the three above mentioned were the only ones admitted.

An important feature of the meeting was the empowering of the executive committee to institute such suits against automobile manufacturers who are infringers of the Selden patent as counsel may advise. There are now 62 makes of gasoline cars licensed under Selden patent, more than one-third of these having been so licensed since Judge Hough of the United States Circuit Court broadly sustained the Selden patent as covering the modern gasoline automobile. The complete list of licensees, and the cars they manufacture, revised to January 15, is as follows:

American Locomotive Company, Alco; American Motor Car Company, American; Apperson Bros. Automobile Company, Apperson; Autocar Company; Autocar; Bartholomew Company, Glide; Brush Runabout Company, Brush; Buckeye Manufacturing Company, Lambert; Buick Motor Company, Buick; Cadillac Motor Car Company, Cadillac; Chalmers-Detroit Motor Company, Chalmers-Detroit; Corbin Motor Vehicle Corporation, Corbin; Columbia Motor Car Company, Columbia; Dayton Motor Car Company, Stoddard-Dayton; Dorris Motor Car Company, Dorris; Elmore Manufacturing Company, Elmore; Everitt-Metzger-Flanders Company, Studebaker E-M-F, Studebaker-Flanders; H. H. Franklin Manufacturing Company, Franklin; Haynes Automobile Company, Haynes; Hewitt Motor Company, Hewitt Truck, Everitt; Hudson Motor Car Company, Hudson; Hupp Motor Car Company, Hupmobile; Jackson Automobile Company, Jackson; Knox Automobile Company, Knox; Locomobile Company of America, Locomobile; Lozier Motor Company, Lozier; Mack Bros. Motor Car Company, Mack Truck; Matheson Motor Car Company, Matheson; Maxwell-Briscoe Motor Company, Maxwell; Mercer Automobile Company, Mercer; Mitchell Motor Car Company, Mitchell; Moline Automobile Company, Moline; Moon Motor Car Company, Moon; Mora Company, Mora; National Motor Vehicle Company, National; Nordyke and Marmon Company, Marmon; Olds Motor Works, Oldsmobile; Packard Motor Car Company, Packard; Palmer & Singer Mfg. Co., Palmer-Singer; Peerless Motor Car Company, Peerless; Pierce-Arrow Motor Car Company, Pierce-Arrow; Pierce Motor Company, Pierce-Racine; Pope Manufacturing Company, Pope-Hartford; Premier Motor Manufacturing Company, Premier; Regal Motor Car Company, Regal; Reo Motor Car Company, Reo; Royal Tourist Car Company, Royal Tourist; Alden Sampson, 2d, Sampson Truck; Selden Motor Vehicle Company, Selden; Simplex Automobile Company, Simplex; F. B. Stearns Company, Stearns; Stevens-Duryea Company, Stevens-Duryea; Studebaker Automobile Company, Studebaker-Garford; E. R. Thomas Motor Company, Thomas; Waltham Manufacturing Company, White; Willys-Overland Company, Overland, Marion; Winton Motor Carriage Company, Winton; York Motor Car Company, Pullman.

The following were in attendance at the meeting:

James Joyce, American Locomotive Company; George H. Strout, Apperson Bros. Automobile Company; John S. Clarke, D. S. Ludlum, Autocar Company; A. Y. Bartholomew, Bartholomew Company; Frank Briscoe, Brush Runabout Company; W. C. Durant, Buick Motor Company; W. C. Leland, Cadillac Motor Car Company; Hugh Chalmers, Chalmers-Detroit Motor Company; Herbert Lloyd, H. W. Nuckols, Columbia Motor Car Company; M. S. Hart, Corbin Motor Vehicle Corp.; Wm. R. Innis, Everitt-Metzger-Flanders Company; G. H. Stilwell, H. H. Franklin Mfg. Company; Elwood Haynes, Haynes Automobile Company; E. R. Hewitt, Wm. E. Metzger, Hewitt Motor Company; R. D. Chapin, Hudson Motor Car Company; G. A. Matthews, Charles Lewis, Jackson Automobile Company; A. N. Mayo, Knox Automobile Company; S. T. Davis, Jr., A. W. Robinson, Locomobile Company of America; H. A. Lozier, Lozier Motor Company; F. F. Matheson, Matheson Motor Car Company; Benjamin Briscoe, Maxwell-Briscoe Motor Campany; Wm. T. White, Mercer Automobile Company; Henry Plow, Mitchell Motor Car Company; W. H. Van Dervoort, Moline Automobile Company; C. C. Hanch, Nordyke & Marmon Company; H. B. Joy, Packard Motor Car Company; L. H. Kittredge, Peerless Motor Car Company; Charles Clifton, Pierce-Arrow Motor Car Company; George Pope, A. L. Pope, Pope Mfg. Company; H. O. Smith, Premier Motor Mfg. Company; R. E. Olds, Reo Motor Car Company; Geo. J. Dunham, Royal-Tourist Car Company; G. E. Mitchell, Alden Sampson, 2nd, R. H. Salmons, George B. Selden, Selden Motor Vehicle Company; F. B. Stearns, F. B. Stearns Company; Wm. R. Innis, Studebaker Automobile Company; E. R. Thomas, E. R. Thomas Motor Company; Windsor T. White, Waltham Mfg. Company; Thos. Henderson, Winton Motor Carriage Company; Thos. C. O'Connor, York Motor Car Company.

## SUCCESS OF THE PALACE SHOW

At the meeting of the committee of management, American Motor Car Manufacturers' Association, held at the New York headquarters last week, R. E. Olds, chairman of the show committee, rendered his report of the Grand Central Palace show, indicating that the affair exceeded in attendance, in the amount of business done and in profits any previous automobile exhibition held at the Palace. A dividend of 72 per cent. on the amount paid for space was declared to the Importers' Automobile Salon and the Motor and Accessory Manufacturers, who were interested in the show with the organization of makers.

A letter was approved to be sent to every member of the association relative to the annual meeting to be held in Chicago on February 9, for action on the association's agreement which expires by limitation on that date. The clause reads as follows:

The term of this agreement is for five years, but any party hereto shall be considered as withdrawn from the terms hereof who fails to pay the sum or sums hereinafter mentioned within thirty days of demand therefor by the committee heretofore created.

Upon motion, duly seconded, the resignation of Alfred Reeves as general manager, was accepted with regrets.

It was voted by the association to present R. E. Olds, chairman of the 1910 show committee, a suitable token in appreciation of his leadership in connection with the show.

At the meeting were H. O. Smith, chairman, Premier Motor Manufacturing Company; W. H. Van Dervoort, Moline Automobile Company; R. E. Olds, Reo Motor Car Company; Charles Lewis, Jackson Automobile Company; Benjamin Briscoe, Maxwell-Briscoe Motor Car Company; Henry Plow, Mitchell Motor Car Company; C. C. Hanch, Nordyke & Marmon Company; S. H. Mora, Mora Company, and Alfred Reeves, general manager.

## LICENSED DEALERS TO ORGANIZE

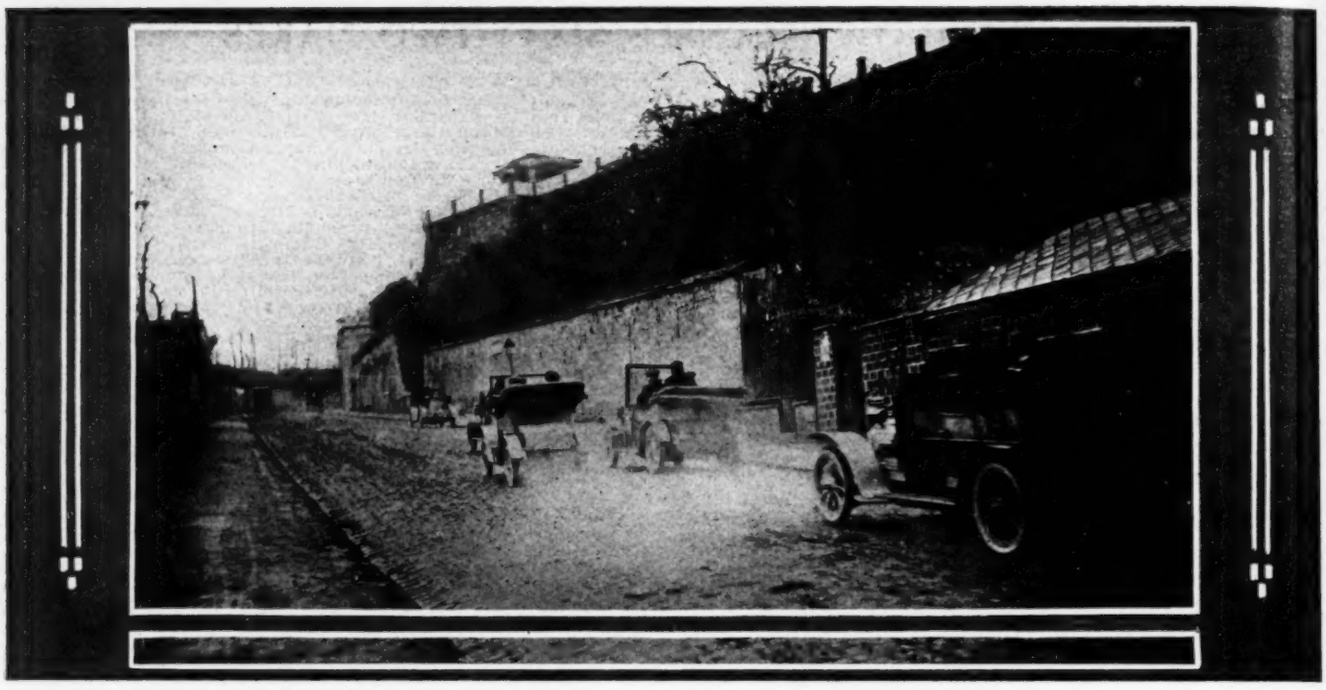
A call has been issued with a view to forming an organization to be known as the "Licensed Automobile Dealers of New York." The meeting will be held at the Hotel Astor, Thursday, January 20, at 2 o'clock. The call is signd by the Sidney B. Bowman Automobile Company (Apperson and Marmon cars), The White Company (White cars), Geo. C. John (E. M. F. and Flanders), Oldsmobile Company of New York, General John T. Cutting (Oldsmobile), E. R. Thomas Motor Company (Thomas), Maxwell-Briscoe Company, Inc. (Maxwell), Carl H. Page & Co. (Chalmers-Detroit), R. M. Owen & Co. (Reo and Premier).

It is understood that the formation of the proposed Licensed Automobile Dealers of New York is the forerunner of similar associations in all of the big cities of the country.

## MITCHELL COMPANIES ARE CONSOLIDATED

RACINE, WIS., Jan. 15—The Mitchell Motor Car Company and the Mitchell & Lewis Company, which manufactures farm wagons and buggies, were united yesterday in a new company capitalized at $10,000,000, to be known as the Mitchell-Lewis Motor Company. The new concern will be headed by William Mitchell Lewis, son of William T. Lewis, who has heretofore been at the head of both concerns.

William T. Lewis will retire from active work, but will remain in an advisory capacity as charman of the board of directors. The officers of the new Mitchell-Lewis Motor Company are: William Mitchell Lewis, president; Henry G. Mitchell, vice-president; George B. Wilson, second vice-president; Frank L. Mitchell, treasurer; G. Vernon Rogers, secretary; John W. Bate, designer and superintendent, and James W. Gilson, sales manager.



Contestants in the French Reliability Trials for Voiturettes, Climbing the Grade at St. Germain

# HIGH PERCENTAGE OF CLEAN SCORES IN FRENCH TRIALS

PARIS, Dec. 28—Sixteen out of twenty-nine have survived with perfect scores in the first reliability trials held in France. The event was an endurance test of 2,000 miles spread over fifteen consecutive days, with conditions similar to those of the sealed bonnet tests of America, with the exception that the seals were replaced by an official observer. As the French observer is too often lacking in seriousness, and can be accused of such crimes as leaving his car to go shopping or sight-seeing en route, it has been decided to replace him by seals on the bonnets when the time comes for holding the next competition.

The percentage of clean score survivors is remarkable when it is considered that the event was run in midwinter over roads which were bad under the French standard. It is true there was never much mud plugging, but always a hard surface so full of pot holes that it had a masterly power of shaking nuts loose and causing the rupture of sundry bolts. As an example of the progress that has been made, it is worth recalling that in a similar event two years ago, over a good road guarded by military, there was an elimination of 50 per cent. after six days' running. This year about 35 per cent. have disappeared after fifteen days on the open road. Next year the average speed will be raised from 15 1-2 miles an hour to 19; the daily runs will be made longer, and not even the opportunity will be given to clean fouled spark plugs.

Although officially known as voiturettes, it needs a stretch of the imagination to place some of the competitors in this class. Light racing cars would be a more correct definition. Cylinder dimensions were fixed at 4.9 by 5.9 maximum bore and stroke for a one lunger; 3.9 by 5.1 for two cylinders and 3.1 by 4.7 for four cylinders. A considerable amount of speed can be got out of four cylinders of over 3-inch bore and nearly 5-inch stroke, as was fully proved during the trials. Officially, however, the extra speed above 15 1-2 miles went for nothing.

With one or two exceptions the competing vehicles were light sporting cars, many of them capable of doing 50 miles an hour on the open. Under the rules they had to be equipped for winter travel, complete with mud guards, hood, wind shield, lanterns, etc., and have comfortable touring bodies. One of the competitors went to the extent of furnishing a comfortable inside steering body, although the majority had the smallest wind shields and the lowest hoods possible, their drivers considering speed of far more importance than comfort.

Single cylinders were not as numerous as might have been expected, there being but three of this type in the sixteen clean-score winners. There were no two-cylinder cars, but plenty of small fours. The distinctive feature of the motors was the proportion of long strokes. Among the singles the dimensions in one case were 120 by 140, and in all others 100 by 130 millimeters. In the four-cylinder class the greatest proportion of stroke to bore was 1.84, and the lowest 1.38, the average being about 1.50. In the majority of cases the fours had their cylinders in one casting without a central bearing. High-tension ignition was used invariably, without any storage batteries as a stand-by.

In every case failures were due to careless driving or minor defects. George Sizaire, the one-lunger expert and speed champion, was put out of business by the breakage of a ball in a front wheel bearing. One of the four-cylinder Rolland-Pilain vehicles —the most racy looking and speediest of the whole lot—had to pull up sharp when going at 40 miles an hour. The result was a quick skid and an equally quick smashing of a rear wheel. Phil De Marne played at racing with his four-cylinder Gregoire until a back spring failed him when taking a gully at high speed. He changed the leaf alone in half an hour, but henceworth was counted among the out-and-outers. A Sizaire-Naudin went out through a valve sticking in its guide. A Hurtu broke its gasoline pipe; a Barre jumped its fan belt, and another car from the same factory damaged its radiator in a collision; a Doriot-Flandrin had a leaky radiator; a Corre-La Licorne bought bad gasoline on the road and lost so much time getting rid of it that it was not worth starting again; a friction-driven Turicum had to tighten up nuts on its friction disc; the driver of a similar type of car made by Fouillaron loitered so much that he came in beyond his time limit; a Doriot-Flandrin driver became weary of changing tires, and a Zenith car sneaked home without saying good-bye to anybody.

Those that came through after making all controls on time, without changing a part and without adjustments, represented eleven firms. Alcyon was the only one to put in three cars and

bring all three through with perfect scores. Delage and Demeester started with only one each and finished perfect; all the others lost one or two cars. The perfect scorers are:

Alcyon (3) four cylinders, 2.9 by 4.3 bore and stroke.
Delage, four cylinders, 2.9 by 4.7 bore and stroke.
Demeester, four cylinders, 2.9 by 4.3 bore and stroke.
Gregoire (2), four cylinders, 3.1 by 4.3 bore and stroke.
Rolland-Pilain (2), four cylinders, 3.1 by 4.3 bore and stroke.
Corre-La Licorne (2), four cylinders of 2.4 by 3.9 and 3.1 by 4.3 bore and stroke.
Sizaire-Naudin, single cylinder, 4.7 by 5.5 bore and stroke.
Hurtu, single cylinder, 3.9 by 4.3 bore and stroke.
Barre, four cylinders, 2.9 by 4.7 bore and stroke.
Doriot-Flandrin, single cylinder, 3.9 by 5.1 bore and stroke.
Turicum, four cylinders, 2.9 by 4.3 bore and stroke.

## FRENCH COMMERCIAL TRIAL RESULTS

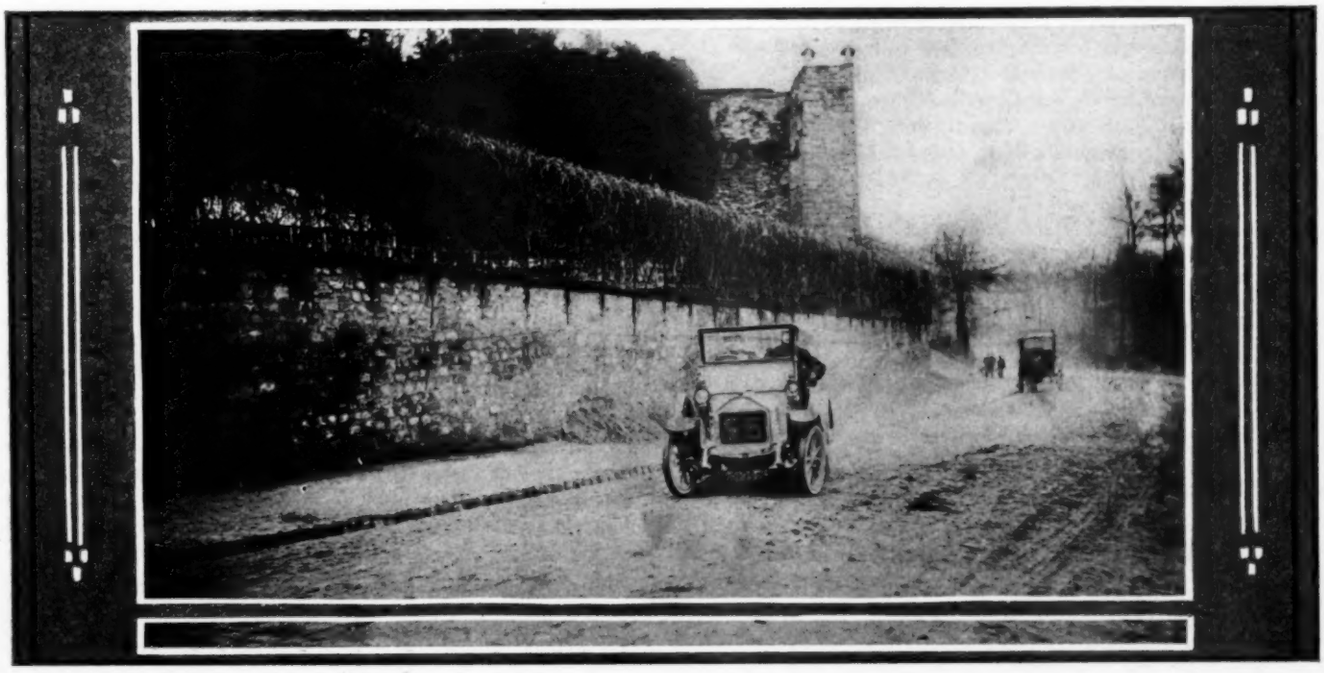
PARIS, Jan. 12—Improvements in wheels, rubber tires and suspension are the strongest features of the commercial vehicles taking part in the recent French trials, and lubrication is the weakest, according to the technical report just issued by the judges. Of the 22 disqualified vehicles three only were thrown out by reason of accidents to wheels and tires, and of these three, one had a special type of tire being tested for the first time. Steel tires were not obligatory except under the military rules, and were not very generally employed. Their defect was a certain amount of skidding on the greasy Belgian block, and a tendency to flatten out under the continued action of the road. Shock absorbers were used extensively in conjunction with solid rubber tires, and proved most satisfactory. As the chassis in most cases is a lighter construction than a few years ago, it was possible to lengthen the springs considerably, while diminishing their width, with very good results. The improved suspension not only gave a longer life to the wheels, but was most advantageous to the mechanical organs, which in this competition finished in better condition than ever before.

The official report has not so much praise for the lubricating systems, so far as their economy is concerned. "One truck, weighing 5 3-4 tons, used 1 3-10 gallons of lubricating oil and 24 pounds of grease for a distance of 1,500 miles, while another vehicle, weighing a few pounds more, passed over the same route and used 30 gallons of oil and 15 pounds of grease; a third, weighing a few pounds less than the first vehicle, but covering a distance of 1,800 miles, consumed 66 gallons of lubricating oil and 4 2-5 pounds of grease. With such examples it would be most difficult to average the oil consumption of trucks."

Progress has been made in the use of various fuels by the internal combustion motor, but, in the opinion of the jury, it is desirable that the theoretical compression of the motor should be established with a full knowledge of the fuel that is about to be employed. "If the compression had been made higher the consumption of 50 per cent carburetted alcohol, which is at present equal to that of gasoline, would doubtless have been better than with this fuel. Benzol being fixed as a fuel by reason of its low price, constructors did not hesitate to modify their cooling arrangements, and to adequately warm their carbureters in order to get the most economical results.

The causes of the 22 failures out of the 54 vehicles starting in the competition are set forth in the official report. The Schneider Company had a vehicle in the ditch for 2 hours 20 minutes, and arrived late at the control; a second vehicle was disqualified by reason of magneto trouble. Krieger lost three vehicles, one by reason of ignition and carbureter trouble, a second by the loss of a rear tire, and the third by a serious leak in the gasoline tank. Panhard had a seized piston on one truck, a breakdown of the water circulating system on another, and a cracked cylinder on a third, following the breakdown of the water circulating system. Berliet figured for two vehicles in the failure class by reason of one running backwards on a hill, owing to oil on the brakes, and colliding with a following vehicle. Malicet & Blin also ran back on a hill and collided with a tree. Delaugere & Clayette burned out the anti-friction metal in a connecting rod, lost a tire, and had to change a spring hanger.

A two-cylinder Cohendet went into the ditch, but got out in time to qualify for the military portion of the trial. De Dion-Bouton had a single-cylinder delivery van which went out of business with its only cylinder cracked; a four-ton truck from the same factory broke its differential. Peugeot suffered a seized connecting rod bearing, and in another case lost a vehicle in a collision. Dietrich had two losses, one from magneto breakdown and the other by late arrival. An Aries had to be towed up a hill owing to the gears not working.



One of the Alcyon Voiturettes That Made a Perfect Score in the Recent French Reliability Trials

## THE NEW LOS ANGELES MOTORDROME

Considerable interest is shown in the proposed construction of a one-mile board track at Santa Monica, a suburb of Los Angeles, Cal. Definite announcement of the plans has been made by F. E. Moskovies, the head of the enterprise, and an engineer of note. The project was quickly financed, a California railroad company assuming one-half of the stock, while the other half was immediately taken up by individuals.

Positive dates have been set for the opening meet and a sanction granted by the Contest Board of the A. A. A.—the first sanction to be granted under the new working agreement between that body and the Manufacturers' Contest Association. Seven days, April 8-9-10 and 13-15-16 and 17 are the dates selected.

In principle, this innovation will greatly resemble a bicycle track. It will cover one mile in a perfect circle, the turns having an enormous radius, even greater than that of the famous Brooklands track in England. The width will be 75 feet, the whole uniformly banked to a gradient of three in one, and 25 feet high on the outer edge. The track proper will be constructed of "two by fours" of Oregon pine properly planed down and finished in a way to insure the greatest smoothness.

A notable feature of the Los Angeles Motordrome, as it will be known, lies in the fact that owing to peculiar construction it will be completely closed against the non-paying public by its outer rim. The grand stand will encircle a certain portion of the track, having its main floor on a level with the top of the 25 foot outer edge. This grand stand will extend quite a distance around the track with entrances at various points on the ground. Its projectors claim that through its novel construction racing risk will be reduced, and greater speed made possible, and while there has been much discussion among experts relative to the merits of board surface for racing, yet some of the best engineers and drivers in the country have fallen in readily with the idea.

## NEW ORLEANS READY FOR MARDI GRAS

NEW ORLEANS, Jan. 17—The New Orleans Automobile Club has been working upon its annual Mardi Gras Speed Carnival plans, and announcement has been made by the director of contests, Homer George, of the various events of the meet. Already entries have been received from George Robertson, with a Simplex; Ralph De Palma, with the Fiat Cyclone; Barney Oldfield, with his Benz, and Ben Kirscher, with a Darracq. The Jackson and Cole factories have named two cars each.

The list of events for the two days calls for fourteen races, for all classes of cars from the stock chassis of 161 to 230 piston displacement, to the free-for-alls. Three big amateur events are on the list, each with a $500 trophy. These have attracted entries so far representing New Orleans, Chicago, Atlanta, St. Louis and New York. Others are assured. Two of the events are at five miles and one at ten.

Two free-for-all races are carded each day, and one handicap. The feature of the first day is the New Oreans Hotel Sweepstakes at twenty-five miles, open to cars of A. A. A. classes 1, 2 and 4, with $250 in cash to the winner, donated by the Grunewald, St. Charles, Montleone, New Denechaud and Cosmopolitan hotels. The second day's feature is the Crescent City Motor Derby at fifty miles, for the same class of stock chassis, with $250 in cash to the winner, donated by the New Orleans Progressive Union. A purse of $250 cash has been donated by New Orleans dealers to be divided among the three drivers scoring the greatest number of points in two days.

## BUFFALO TO HAVE AERO SHOW

BUFFALO, N. Y., Jan. 17—The Aero Club of Buffalo is making arrangements for a contest of aeroplane models to be held in one of the largest halls in the city about March 1. President John M. Satterfield will contribute a silver trophy. The club's total membership is now 61.

## ANOTHER CHAPTER OF DETROIT GOSSIP

DETROIT, Jan. 17.—Official announcement is made that the Lozier Automobile Company will remove to Detroit, negotiations which have been under way for some time having proved successful. Several prominent Detroiters are interested in the undertaking, and it is understood the company name will be changed to the Lozier-Detroit, following a practice prevailing among a number of local auto makers of incorporating the city name. This will add still another high grade concern to the already long list of automobile factories located here.

The Watt Motor Company, organized last November, has increased its capital stock from $100,000 to $300,000, the increase, it is announced, being occasioned by demands for the stock. A large factory will be erected in the spring.

The Ford Motor Company is now installed in its immense plant in Highland Park, just north of the city, where it will have a daily capacity of two hundred complete cars. This effectually serves to quiet rumors circulated for months, supposedly originated by disgruntled contractors, that the main building, 75 x 862 feet and four stories in height, was unsafe and would be torn down. A machine shop 840 x 140 feet, one story high, has just been completed and many more immense buildings will be constructed at once.

The Lotz Auto Company has been incoporated with a capital stock of $300,000, one-third of which is paid in. The principal stockholders are John A. Lotz, a local real estate man; Joseph Christian, Chicago; John McQueen, George Cooley and Arthur A. Fletcher. The company will manufacture a runabout and four and six-cylinder cars, the prices ranging from $600 to $1,500. It will also produce a new rubber tire, the invention of George Cooley, of Grand Rapids. A factory will be erected.

The Oriental-Detroit Company, an automobile manufacturing concern headed by O. F. Mead, of this city, and capitalized at $100,000, has secured a tract of land in Birmingham, just outside of Detroit, and will erect a factory for the manufacture of a high-powered two-passenger roadster to be marketed at a nominal price, as well as several other types of cars.

Further evidence of prosperity is found in the purchase by the Chalmers-Detroit Motor Company of another five and one-half acres of land adjoining its present plant on the east, and on which it is the intention to soon erect another addition to its already enormous plant. The company has just completed a four-story building which added one third to its factory space, making 500,000 square feet that are now available.

## NEW HEIGHT RECORD AT LOS ANGELES

LOS ANGELES, CAL., Jan. 17—The principal event of the week of aviation trials was the new height record established last Wednesday by Louis Paulhan on a Farman biplane. The altitude was figured as 4,165 feet, and as it has been confirmed by the International Aeronautical Federation, which at the time was in session at Paris, it will stand as the official record. The best previous performance was Latham's 3,444 feet, at Mourmelon, France, January 7.

Paulhan again got into the limelight Friday, making a cross-country dash of twenty miles and return from the aviation field to San Pedro harbor, where he rounded the wireless telegraph mast. On the same day Curtiss set a record of 2:12 for the one-and-a-half-mile course. To-day Paulhan went after the distance record, but after covering 75.6 miles in 1 hour 58 minutes 27 2-5 seconds descended because of a leak in his gasoline tank. Curtiss made ten laps of the course in 23 minutes 4 2-5 seconds. Paulhan's best time in this event was 25 minutes 5 1-5 seconds.

LOS ANGELES, CAL., Jan. 18—Louis Paulhan again distinguished himself by a remarkable cross-country flight. Flying both with and against a wind that kept the other aviators down, he went from Aviation Field to "Lucky" Baldwin's ranch, 23 miles away, and returned to his tent, in 1 hr. 2 min. 42 4-5 sec.

# WHAT CLUBS ARE DOING THESE WINTER DAYS

### CAPITAL CITY CLUB ELECTS A NEWS LATE

WASHINGTON, D. C., Jan. 17—The sixth annual meeting of the Automobile Club of Washington was held to-night, and the following officers were elected for the ensuing year: President, H. Chadwick Hunter; vice-president, John K. Heyl; secretary-treasurer, Elliott P. Hough; captain, Joseph H. Falconer; lieutenant, D. J. Dunigan; governors, L. A. Dent, W. D. West, W. S. Duvall and W. H. Smith. This is an entire new slate with the exception of John K. Heyl, who was advanced from secretary to vice-president. An amendment to the by-laws was adopted in order to consolidate the office of secretary and treasurer. The retiring president, W. D. West, submitted a report which showed the club had been instrumental in securing a number of concessions for automobilists. Fifty-five new members were admitted during the year. The new president, Mr. Hunter, is one of Washington's pioneer automobilists and has been identified with every movement of interest to the motoring fraternity. He is also an authority on aviation.

### BETTER ROADS BELOW MASON AND DIXON'S LINE

BALTIMORE, Jan. 17—The residents of Baltimore county, headed by the Good Roads Association of that section, are after improved crossroads, and have asked the Automobile Club of Maryland to help them in their efforts. The plan of the countyites is in the shape of a bill providing for a $1,500,000 bond issue, from which amount $100,000 is to be given to each of the 15 districts, to be expended in five years on improved crossroads, as the State has appropriated ample money for the turnpikes. The bill further provides that the money shall be handled by the commissioners of Baltimore county, and that the highways commission shall be composed of three county commissioners, the county roads engineer, and two other members selected by the judges of the Circuit Court for Baltimore county. The bill will be placed before the General Assembly, now in session. Members of the automobile club will put the plan before the directors at the next meeting.

### BEEFSTEAK DINNER TO CHRISTEN CLUB HOUSE

LOUISVILLE, KY., Jan. 17.—Right royally was the new clubroom of the Louisville Automobile Club christened Thursday evening. The occasion was announced as the club's "first beefsteak dinner," and it was probably the most unique event in the history of the organization. The business meeting began at 8 o'clock, at which certain changes in the by-laws and constitution were considered, with a view to making them conform to present day conditions, surrounding the sport of automobiling. Under the leadership of President Eugene Straus, the membership of the club has been increased until it now includes nearly every owner in the city. When an effort was made to exclude dealers from active membership it was promptly voted down. The club and the dealers are now in closer touch than at any previous time.

After the supper President Straus was presented with a handsome loving cup.

### HARRISBURG, PA., NOMINATES FOR ELECTIONS

HARRISBURG, PA., Jan. 17—At the nomination meeting of the Automobile Club in the Metropolitan Hotel the following were put up for election next month: For president, W. O. Hickok, 3d; first vice-president, Frank H. Bomgardner; second vice-president, David G. Bowman; third vice-president, Dr. John Oenslager; treasurer, John C. Nissley; secretary, J. Clyde Myton. For the board of governors, Frank J. Brady, O. C. Robertson and H. C. Wright were nominated, to succeed C. G. Nissley, Roy W. Senseman and Dr. John Oenslager.

### SYRACUSE OFFICERS RE-ELECTED FOR 1910

SYRACUSE, N. Y., Jan. 17.—The annual meeting of The Automobile Club of Syracuse was held at the Yates Tuesday night of last week. Hulburt W. Smith was re-elected president, and all the other officers and directors were re-elected. Annual reports by President Smith and Secretary Forman Wilkinson showed large gains in membership and finances during the year. With five new members elected that night, the club closed the year with a total membership of 410, of which 373 are resident and 37 out-of-town members.

During the year over 500 tourists have been routed from place to place at the club office, of which number 206 registered. More than 600 road signs giving warning of dangerous crossings, bad hills, sharp turns, etc., were placed along the main roads leading in and out of the city.

The club endorsed a plan to lay out a new State road from Cortland to Binghamton, and drafted recommendations to the State Highway Commission regarding improvements to roads hereabouts.

### HARTFORD, CONN., CLUB INAUGURATES NEW YEAR

HARTFORD, CONN., Jan. 17—The first meeting of the local automobile club for the new year was held in the clubrooms on Allyn street Tuesday evening, and was purely a social session. No report on the "all-Connecticut" endurance run was submitted, but one is expected shortly. There was an informal discussion of the subject, and it was evident that there is considerable interest in the proposed event.

Refreshments were served, and everybody had a good time in the cozy quarters. The club membership continues to increase, and includes practically all the representative automobilists of the city.

### QUAKER LADIES HOLD A BANQUET, TOO

PHILADELPHIA, Jan. 17—The Ladies' Quaker City Motor Club held its annual banquet last week in the clubrooms at the Hotel Majestic. Gold and white, the club colors, were prominent in the decorations, and were repeated in the handsomely designed menu cards. During the affair a cable message was received announcing the election of the L. Q. C. M. C. to associate membership in the Royal Automobile Club of London. The committee in charge was composed of Mrs. Edward B. Finck, Mrs. Joseph J. Martin, Sr., Mrs. Joseph J. Martin, Jr., Mrs. Samuel E. Baily, Mrs. Charles Snyder and Dr. Katherine Sweeney.

### BISON CITY'S AUTOMOBILE CLUB WILL BUILD

BUFFALO, Jan. 17.—The board of directors of the Automobile Club of Buffalo has decided to build or buy quarters for a country clubhouse, the location of which will be within 20 miles of the city. It is planned to have the house ready for occupancy by July 1, and it will be located upon one of the principal automobile routes leading from the city. The building committee numbers 24 of the most prominent and wealthy members of the club, and is headed by Vice-President Harry Thorp Vars.

### NORRISTOWN, PA., CLUB HAS 150 AT BANQUET

NORRISTOWN, PA., Jan. 17—The Norristown Automobile Club held its annual banquet at the Jeffersonville clubhouse last Saturday night. One hundred and fifty members and guests were present, among the latter being numerous legislators, the county commissioners, State Highway Commissioner Joseph W. Hunter and representatives from all the nearby automobile clubs. Theodore L. Bean was toastmaster.

## THE STUDEBAKER-E-M-F IMBROGLIO

DETROIT, Jan. 18—Charges and counter charges continue to fly back and forth in the Studebaker-E-M-F controversy, which was scheduled for trial before Judge Swan, in the United States circuit court to-day, and which because of the disclosures made by both parties to the suit holds the center of the stage.

When the injunction proceedings came up to-day before Judge Swan, the attorneys for the Studebaker Company asked for a postponement of the case, owing to the fact that John S. Miller, its principal counsel, was also counsel for John R. Walsh, the convicted Chicago banker, representing him in mandamus proceedings. The E-M-F attorneys acquiesced in the request, and it was finally decided to have the hearing January 25.

When Judge Warrington, at Cincinnati, declined to have anything to do with the case, sending it back to the local United States Circuit Court, where the first action was taken by the Studebaker Automobile Company, E-M-F attorneys immediately filed an answer to the bill of complaint, in which some interesting facts are contained.

After going in detail into the business relations existing between the two companies prior to the ruction, showing how the factories were enlarged to supply the Studebaker Company with additional cars for which it was to be sole distributor, affidavits from majority stockholders in the E-M-F Company are presented to show that the schedule of cars called for by the Studebaker Company was arranged and passed upon by all the directors, and that F. S. Fish, chairman of the Studebaker Automobile Company, referring to the schedule of 15,200 cars for the first year, assured the E-M-F officials that the schedules so carefully prepared would be adhered to; that the Studebaker Company had every reason to believe the E-M-F Company would not be able to build cars as fast as the Studebakers could sell them; and that if through any unforseen cause the South Bend concern was unable to market the cars enumerated in that schedule by months it would arrange to take and pay for the cars and store them until they could be sold.

That the rescinding of this selling agreement by the E-M-F Company because of the alleged failure of the Studebaker Company to live up to the terms was welcomed by agents throughout the country it is endeavored to show through a printed volume of letters from agents who declare they were unfairly dealt with by the Studebakers in the matter of discounts, and that in order to handle E-M-F cars they were forced to purchase another car made by the Studebaker Company which they could not sell. As indicating what the rescinding of the agreement means to the E-M-F Company figures are submitted showing that by selling direct to dealers the company will take in an additional million dollars in profits and yet give the dealers fifty per cent. larger discounts than were allowed by the Studebaker Company.

Meanwhile the Studebaker Company has not been idle, last Saturday morning filing ten and one-half pounds of affidavits in the U. S. circuit court. The list comprises some one hundred and seventy-five separate affidavits from Studebaker agents all over the country, one of the chief points made being that they had rather work for the straight low discount offered by the Studebaker Company and have the prestige of that concern back of them than get the higher rate offered by the E-M-F. It was also declared that through the widespread publicity it has given the matter of discounts the E-M-F Company is demoralizing the automobile trade, rival agents being apprised of the discounts offered and other trade secrets, and being thus able to undersell.

The Studebaker Company charges indirectly that the E-M-F Company long contemplated a break, and seized upon the first excuse to cancel the selling agreement.

These affidavits, as well as providing interesting reading alike for the trade and the general public, are of value as outlining the lines along which the battle will be fought by both parties to the suit. Every point will be bitterly contested, and whichever party proves victor the case will go down in the annals of the automobile industry as one of the most expensive bits of litigation ever indulged in.

## PACKARD DEALERS AT INFORMAL DINNER

Dealers in Packard cars who attended the Madison Square Garden Show were dined by the Packard Motor Car Company last Wednesday evening. The entertainment was given in the small ballroom at the Hotel Astor, and was informal in character, story telling taking the place of the usual set speeches. After the dinner courses had been served the room was darkened and an hour was given to the recital of an automobile story called "On the Road to Anywhere," illustrated by stereopticon pictures and enlivened by instrumental music and songs. The party included the following:

H. B. Joy, S. D. Waldon and C. J. Moore, of the Packard Motor Car Company; M. J. Budlong, New York; Alvan T. Fuller, A. Measure, L. R. Mack, F. C. Graves and I. H. Bolen, Boston; J. W. Tarbill, C. C. Blackmore and J. M. Richardson, Cincinnati; R. J. W. Hammill, Baltimore; C. M. Lines, Cleveland; E. C. Johnson, Philadelphia; W. N. Murray and H. P. Johnson, Pittsburg; Elliott Flint, George Cokely, Providence, R. I.; J. J. Mandery, Rochester, N. Y.; H. E. Greene, H. T. Warmick, Amsterdam, N. Y.; C. J. Bousfield, Bay City, Mich.; R. W. Whipple, Binghamton, N. Y.; W. R. Densmore, Buffalo, N. Y.; F. E. Avery, Columbus, O.; F. L. MacFarland, Denver; A. E. Barker, Detroit; C. G. Embleton, Hartford, Conn.; A. H. Dorsey, Memphis, Tenn.; F. B. Willis, Indianapolis; C. G. Welch, Milwaukee, Wis.; E. P. Moriarty, Kansas City, Mo.; G. M. Reddick, Denise Barkalow, Omaha, Neb.; Ginder Abbott, New Orleans, La.; E. C. Anthony, Los Angeles, Cal.; J. Schaitt, W. E. Seeley, Bridgeport, Conn.; J. A. P. Ketchum, H. G. Ketchum, Saratoga Springs, N. Y.; T. A. Bryson, Savannah, Ga.; C. H. Goss, St. Johnsbury, Ga.; O. L. Halsey, St. Louis; C. A. Benjamin, Syracuse, N. Y.; A. M. Thompson, Toronto, Can.; C. B. Rice, Utica, N. Y.; S. A. Luttrell, J. A. Muelheisen, Washington, D. C.; C. P. Joy, St. Paul, Minn.; C. E. Jones, H. M. Allison, Chicago; C. A. Fitzgerald, Newark, N. J.; Russell Huff, C. A. Du Charme, E. P. Chalfant, F. R. Humpage, W. L. Gleason, Allan Loomis, J. J. Ramsay, H. H. Hills, J. F. Baines, H. E. Stowell, W. H. Workman, L. W. Conkling, Detroit; E. B. Jackson, A. E. Corbin, C. W. Doty, New York.

## GET DRAWBACK ON EXPORTED TIRES

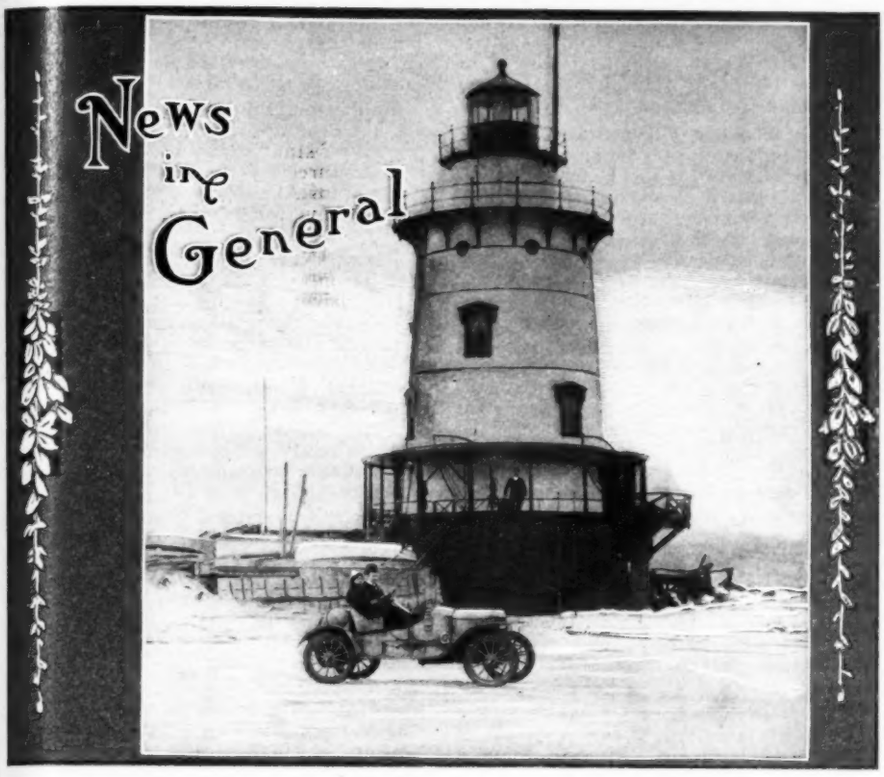
AKRON, O., Jan. 17—A ruling which interests the tire manufacturers of this city has been obtained from the Treasury Department at Washington, D. C., on the exportation of automobile tires. The shipment in question was made by the B. F. Goodrich Company, and the claim was that imported leather washers and steel rivets or studs had been used in the tires. The drawback allowed will equal the duty paid on the imported materials less the legal deduction of one per cent.

The regulations prescribe that the preliminary entry must show the marks and number of the shipping packages, and the number of tires of each size contained in each package, and the amount used, including waste, of the imported materials. Although the value of the materials in question in a single tire is small, in a large shipment it is worth saving.

## "DUTCH" DINNER FOR NEWSPAPER MEN

Newspaper men and the advertising managers of a number of licensed companies were guests at a "Dutch" dinner given to themselves last Thursday at Mouquin's. Many of the representatives of the automobile journals and the New York, Chicago, Boston and Philadelphia daily papers were present.

The celebration started at 10:30 p. m. with a grand march around the floor of the Garden, led by a band. The two-score merrymakers were then transported to the restaurant on one of the new White gasoline trucks, on which they found standing room only. R. H. Johnston was chairman of the committee which arranged the dinner, and he presided over the deliberations of the session, which lasted well into "the cold gray dawn of the morning after."




**Testing the Ice on Hudson River with a Maxwell "Q-Sportsman"**

The photograph shows Berry Rockwell, advertising manager, and Arthur See, racing driver for the Maxwell-Briscoe Motor Company, visiting Rockland lighthouse, about a mile out from shore at Tarrytown, N. Y. At this point the river is three miles wide. The car weighs 1,400 pounds, and the ice is about seven inches thick

**Hoosier Y. M. C. A. a Live One**—Manufacturers and retailers of automobiles in Indianapolis are much interested in the automobile course given by the Y. M. C. A. as part of its industrial training. At the opening course, Ellwood Haynes, president of the Haynes Automobile Company, Kokomo, Ind., gave an interesting lecture on the development and various uses of the gasoline motor. Various lectures and instruction periods have been arranged for by the following committee: G. A. Weidley, Premier Motor Manufacturing Company; Howard Marmon, Nordyke & Marmon Company; Will H. Brown, Overland Automobile Company; Fred I. Tone, American Motor Car Company; George M. Schebler, of Wheeler & Schebler; W. G. Wall, National Motor Vehicle Company; Warren D. Oakes, Parry Automobile Company; Frank L. Moore, Fisher Automobile Company, and Fred I. Willis, Hearsey-Willis Company.

**Carriage Company's Successful Motor Buggy**—The United States Carriage Company of Columbus, O., which recently went into the business of manufacturing motor cars, has designed a combination wagon and call buggy for undertakers which has been quite popular. The wagon is equipped with a gasoline motor and is designed to do the service of both the call buggy and the wagon for the undertaker's assistant. The United States Carriage Company is also equipping a number of ambulances and hearses with motors.

**"Get-you-home Tire"**—C. S. Averill, of Syracuse, N. Y., together with a number of others is interested in this tire, which is said to be so constructed as to not collapse for several hours after it has been punctured. A test of the new tire was made recently as follows: An automobile weighing 4,800 pounds was equipped with the "Get-you-home" tire; with a large nail and hammer four punctures were made in the tire at noon, after which the car was driven all day around the city without any signs of collapse. The first indications of collapse occurred 18 hours after the punctures were made.

**Rambler Truck Rescues Horses**—In San Diego, Cal., recently a Rambler automobile hose truck was pressed into service to relieve a team of horses which had become stalled in the mire. The horse-drawn apparatus was on a railroad track with each pair of wheels against the rail down to the hubs in mud. The Rambler truck pulled it out without any damage and with apparently little effort. It is said that this piece of fire apparatus has answered 82 alarms and coverel about 2,000 miles since it was installed there six months ago.

**Spokane Dealers to Organize**—Plans are being made to organize a Spokane, Wash., auto dealers' association; this for mutual protection. It is expected to have 16 members, taking in every selling establishment in the city, and it is believed that by the organization those concerned will be brought closer together in a business way. It is also proposed to control road races and endurance runs in that vicinity. Harry Ball, L. W. Hodgins, H. P. Banta and J. A. Stoner will back the project.

**New Factory for Cleveland**—F. E. Stiverson, formerly sales manager for Ohio for the White Company, has organized a company known as the Stiverson Motor Car Company. The company will soon begin the erection of a plant near Cleveland at a cost of $100,000. Stiverson announces that his company will build both four and six-cylinder cars. The car will be known as the Stiverson and will be equipped with several different styles of body.

**Hudson Company's Officers**—The new personnel of the Hudson Motor Car Company, of Detroit, following its absolute separation from the Chalmers-Detroit Motor Company, is announced as follows: Chairman board of directors, J. L. Hudson; president, R. D. Chapin; vice-president, H. E. Coffin; secretary, F. O. Benzer; treasurer and general manager, R. B. Jackson.

**Stein Increases Capital Stock**—A recent meeting of the Stein Double Cushion Tire Company, Akron, O., increased its capital stock from $100,000 to $200,000, this preparatory to erecting a large addition to the factory. Increased demand for tires makes this step necessary. The president of the company is C. K. Sunshine and M. M. Neuman is secretary-treasurer.

**Inquiries for Factory Sites**—The Commercial Club of Superior, Wis., reports that several motor car manufacturers have made inquiries as to sites along the new belt line, the Interstate Transfer railroad, giving facilities for Superior and Duluth, Minn., the twin cities. The steel trust is now erecting the first unit of a huge plant at this point.

**Mansfield Rubber Company, Mansfield, O.**—At an annual meeting of stockholders the following board of directors was elected: C. H. Walters, F. H. Walters, C. R. Grant, James E. Waite, R. C. Kinnaman, F. M. Bushnell and F. A. Wilcox. A recent fire caused a damage of $16,000 to this plant.

**International Harvester Company, Akron, O.**—This company is planning to erect several additions to its plant in the Spring. These additions will give it a capacity of 4,000 cars, and for the purpose of carryng out the plans more than $75,000 worth of new machinery has been ordered.

**United Motor Company, Denver.**—Plans are under way for the erection of a new automobile plant in Denver which it is said will employ between 750 and 1,000 men. The principal product will be an automobile truck designed on an entirely new plan.

**Will Make Magnetos.**—The Duplex Coil Company, Fond du Lac, Wis., will start the manufacture of magnetos on February 1. New machinery, screw tools and drill presses are now being installed in the factory.

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### IN AND ABOUT THE AGENCIES

**Studebaker Opens Twenty-four Agencies**—The Columbus, O., branch of the Studebaker, which was formally opened in a new store room on North Fourth street the latter part of 1909, has placed 24 sub agencies in Central and Southern Ohio, which is the territory covered by the Columbus office. In all 53 counties are included in the Columbus territory. Sub-agencies have been placed in Dayton, Springfield, London, Marysville, Marion, Bucyrus, Ashland, Mansfield, Mt. Vernon, Newark, Coshocton, Bellaire, Athens, Logan, Lancaster, Circleville, Zanesville, Chillicothe, Delaware and Middleport.

**New Rainier Agencies**—The following Rainier agencies have recently been given out: In Charlotte, N. C., C. C. Coddington will distribute Rainiers for North and South Carolina; H. H. Tifft, Jr., becomes the Rainier agent in Georgia with headquarters at Atlanta; W. H. Johnson will handle the Alabama business

with headquarters at Birmingham. The New England distributing point will be Boston, where Rainier cars will be sold by the New England Motor Vehicle Company, 591 Boylston street. Negotiations are in progress for the opening of agencies in the West and Middle West.

**Sterling, Cleveland**—The Sterling will be sold in Cleveland by the Sterling Motor Sales Company, formed during the week. The company is incorporated for $30,000. J. C. Koepke, general manager of the company, was formerly superintendent of the garage maintained by the Ohio sales branch of the White Company. Several downtown locations are being considered by the Sterling Company and a site will be chosen for a large garage within a few days.

**New Pittsburg Selling House.**—L. E. Randle, of the Shady Side Motor Car Company, and J. J. Feicht, who is Pittsburg agent for the Reo car, have formed the Liberty Automobile Company. They will have offices and garage at 5958 Center avenue, in the building formerly occupied by the Central Automobile Company, where they have made extensive improvements. Their agencies will be the Regal, Hupmobile and the Hart-Kraft commercial wagon.

**Republic Tires, Philadelphia**—The Lyman Tire & Rubber Company, occupying temporary quarters at No. 1324 Arch street, Philadelphia, has just closed a deal with the Republic Rubber Company, of Youngstown, O., whereby it has acquired the sales rights for Republic Staggard tread tires in the district included in eastern Pennsylvania, southern New Jersey, Delaware, Maryland, District of Columbia and Virginia.

**Rainier, Waverly, Electric, and Crane & Breed Commercial, Philadelphia**—The latest newcomer to the automobile trade is the Collings Carriage Company, Inc., with salesrooms at 1719 Chestnut street, which has recently acquired the Philadelphia agencies for the Rainier, the Waverly electric and the Crane & Breed commercial cars, one of the most comprehensive lines in the city.

**Everett "30" and Rausch & Lang, Spokane, Wash.**—The Pacific Motor Car Company will handle these two cars in addition to the Stevens-Duryea agency which they now have. They will soon break ground for a $10,000 garage. H. B. Housten has been engaged as salesman. Mr. Housten was formerly with the Diamond Rubber Company, San Francisco.

**Lovell-McConnell, Newark**—This company, which has been located in the Currier building, has outgrown its present quarters and is now erecting a new plant on Emmett street. The new buildings are to include a power plant building and garage. They are well known as the manufacturers of the Klaxon and Klaxonette, both audible signals for automobiles and motor boats.

**New Cleveland Agency.**—The Crest Motor Company has been formed and will act as Cleveland agents for the Warren-Detroit, the Paige-Detroit and the Abbot-Detroit. Within a short time the company will locate in a large building nearing completion on Euclid avenue, in the heart of automobile row. Demonstrators are expected within a week.

**Palmer-Singer and Stoddard-Dayton, Philadelphia**—The first of February will witness the removal of the Philadelphia Palmer-Singer and Stoddard-Dayton representatives to new buildings—the former at 336 North Broad street and the latter at 253-255 North Broad street. The "Courier," another Dayton product, has been added to the Stoddard-Dayton line.

**Detroit Electric, Cleveland**—L. L. and H. R. Applebaum have been appointed Cleveland agents for the Detroit Electric and have located in spacious salesrooms on Euclid avenue. Both are experienced business men and L. L. Applebaum has been connected with the Anderson Carriage Company, Detroit, makers of the Detroit Electric, for several years.

**Sternberg Motor Trucks, Chicago**—The Western Motor Car Company, of Chicago, has been selected as distributors in Chicago, northern Illinois and northern Indiana for the Sternberg motor trucks, manufactured by the Sternberg Mfg. Company, of Milwaukee. They are now building a $60,000 factory at West Allis, a manufacturing suburb.

**American Locomotive Company, Chicago**—A new building is to be erected for the Alco branch establishment on the corner of Michigan avenue and Twenty-fifth street. This will be a three-story building with a large sales and storage room for demonstrating and used cars. This branch will be in charge of B. C. Day.

**New Milwaukee Quarters for Reo**—The Curtis Automobile Company, Wisconsin agents for the Reo, has leased a three-story brick building under construction for its garage and salesrooms. The Reo headquarters have been situated at 180 Fifth street, Milwaukee, for several years.

**Billy-Four, Washington, D. C.**—Stanley P. Depew has acquired the agency in the District of Columbia for this car, which is a product of the McNabb Iron Works, of Atlanta, Ga. Business will be carried on in connection with the Washington Garage Company, Fourteenth and C streets.

**Marmon, Pittsburg**—The Keystone Automobile Company, of the East End, will handle the well-known Marmon car in addition to its regular lines, which include the Stoddard-Dayton, Welch, Velie, Columbus, Overland, Courier, and the Rapid motor trucks.

**Hopewell, Newton, Mass.**—On February 1 Hopewell Bros. will move from Cambridge to Northern Massachusetts, the factory at Cambridge proving inadequate to supply the demand. The new establishment has every facility for filling orders promptly.

**Recent Baltimore Agencies**—The following cars will be handled in Baltimore as follows: Matheson, E. L. Leinbach; Alco, Neeley & Emsor; Flanders, Dixon C. Walker Auto Company; Hudson, Zell Motor Car Company; Apperson, Boyd, Eastman Company.

**Billings & Spencer, Detroit**—Owing to an increase of business in the Middle West, this company will establish an office in Detroit with Clair L. Barnes, general sales manager, dividing his time between the factory offices at Hartford and Detroit.

**Ohio "40," Pittsburg**—The Park Automobile Company, which is composed of H. G. Knapp, J. C. Armor and A. G. C. Quay, and is located at 210-212 West Ohio street, North Side, has secured the agency for the new Ohio "40." The company has a storage capacity of forty cars in a fireproof garage.

**Kissel Kar and Maxwell, Janesville, Wis.**—The Baack-Reed-Gage Company, of Janesville, recently organized, will handle these two lines for 1910. The new garage is expected to be ready for occupancy on February 1.

**Manhattan, Trenton, N. J.**—C. B. Ackers has been appointed agent in this city for the Manhattan commercial cars, manufactured by the Mack Bros. Motor Car Co., of Allentown, Pa., which makes one and five-ton trucks and sight-seeing cars.

**Parry, New York City**—George H. Robertson, one of America's foremost racing drivers, has secured the New York agency for the Parry Automobile Company, of Indianapolis, Ind. He will be located on Broadway.

**Mitchell Motor Car Company, Racine, Wis.**—The new office building of the Mitchell Motor Car Company at Racine, Wis., is ready for occupancy and several departments are already using the new quarters.

**Overland, Hartford, Conn.**—E. H. Harris has taken the agency of the Overland which was recently relinquished by A. W. Peard, who introduced it in this section of the State two seasons ago.

**Cole "30," Philadelphia**—The Stoyle-Vogel Company, Broad and Race streets, Philadelphia, agents for the American, has rounded out its line by acquiring the local rights for the Cole "30."

**Kissel Kar, Kenosha, Wis.**—The Kent Motor Car Company, of Kenosha, Wis., organized several months ago to handle the Buick, has contracted for the Kissel Kar, made in Hartford, Wis.

**Moon Agencies Established** — The Moon car will be handled in Buffalo by Geo. G. Buse, in Cleveland by J. H. Greenwald, and in Lexington, Ky., by the Smith-Watkins Company.

**Velie, Philadelphia**—The Standard Motor Car Company, of 614 North Broad street, has just made a contract with the Velie Motor Car Company, of Moline, Ill., to handle the **Velie.**

**E-M-F and Flanders, Pittsburg**—The Pittsburg Automobile Company, Grant boulevard and Seventh avenue, has secured the agency for the E-M-F "30" and the Flanders "20" cars.

**National, Detroit.**—C. W. Sumner has secured the agency for the National car in Detroit and the State of Michigan. He is the manager of the Racine Boat & Automobile Company.

**Franklin, Montreal, Quebec**—The Wilson Automobile Company will represent all Franklin products, including pleasure and commercial cars.

**Brownlee Auto Company, Austin, Tex.**—This company has established a branch agency in Austin; the headquarters is located in San Antonio.

**Hudson, Hartford, Conn.**—George D. Knox has taken the Hudson for Hartford and Tolland counties, Connecticut.

**Reo, Racine, Wis.**—Jacob Stoffel has been appointed district agent for the Reo with F. Bosustow as his associate.

## PERSONAL TRADE MENTION

**Walter G. Pearson,** former president of the Pearson Motor Supply Company, New York and Brooklyn, died on January 14 after a prolonged illness. Mr. Pearson was at one time editor and publisher of *Motor Car* and secretary of the Long Island Automobile Club during 1905-1907.

**M. B. Fletcher** has joined forces with the Premier Motor Car Company, Indi-

anapolis, Ind. He will act in the capacity of traveling representative for the company. Mr. Fletcher was previously identified with retail automobile trade in Denver, Colo., and has a wide acquaintance in the territory he will cover.

Oscar **Stegman** is now associated with Landau & Golden, consulting engineers, 1779 Broadway, New York, in the capacity of Western engineer. Mr. Stegman will be located in Milwaukee, Wis.

**W. A. Webber,** well known to the automobile trade, is now in charge of the Parry Boston Company, Inc., in Boston. He has established temporary headquarters at 2407 Columbus avenue.

**Marcus Allen** is now the sales manager of the Dorian Demountable Rim Company, 114 Liberty street, New York. He was formerly connected with the Empire Tire Company.

**E. O. Wood** has become identified with the General Motors Company, Flint, Mich., as assistant to W. C. Durant, chairman of the executive committee.

**W. H. Schwartz** has been elected sales manager of the Metz Company, manufacturers of automobiles, in Waltham, Mass.

### EXCELSIOR SUPPLY STILL EXPANDING

CHICAGO, Jan. 17—An excess of business is gratifying, but sometimes it brings in its wake other things not so pleasant; thus, the necessity for opening a new branch with new ties to make, new friends to find out, and many other similar things. The Excelsior Supply Company, with headquarters at 237 Randolph street, this city, who have for some time carried on a huge supply business on the Pacific Coast, has now found this business so large that a Pacific branch has become a necessity.

So, to look after the interests in this territory, a branch of the Chicago establishment has just been opened with a full line of automobile supplies and Excelsior motor cycles. This will be in charge of T. A. Skinner, well known in the West as one of the Excelsior hustlers, with Frank W. Sanford as his right-hand man.

This centralizing of shipments and the maintenance of an elaborate stock will materially aid delivery both in time and expense. The stock carried will be the most complete line of automobile accessories carried west of Chicago and will run close second to the large supply houses of that city.

Making this a distributing point for the Excelsior Auto-Cycle will materially aid in meeting the demand for this machine on the Pacific coast which has, during the past year, been many times greater than it was possible to meet.

Special attention will be given to all lines of accessories manufactured or controlled by the Excelsior Supply Co.

### SNOW REMOVAL BY MOTOR TRUCK

The work of removing the last fall of snow from the streets of New York furnished a striking example of the efficiency and earning capacity of the modern motor truck as compared with the horse-drawn vehicle. In order to expedite his task, Wm. N. Edwards, Commissioner of Street Cleaning, secured the services of a White 3-ton gasoline truck and put it to work side by side with the horse-drawn wagons so that the comparison between the two might be based on similar conditions of service.

The official figures of the Street Cleaning Department show that the White truck did at least four times the work of the ordinary two-horse truck. First of all, the motor truck carried 10 cubic yards of snow as compared with 5 cubic yards carried by the ordinary contractor's wagon, such as a brick cart. The motor truck was loaded at Union Square, made the trip to the dock at the foot of East Eighteenth street, was unloaded and returned to Union Square in an average of 40 minutes, while the best recorded time for a two-horse truck was 1 hour 20 minutes. The rate paid by the city was 36 cents a cubic yard, so that the White truck earned $7.20 while the best of its horse competitors was earning $1.80.

If the average performance of the two-horse truck was considered, the comparison in favor of the motor truck was even better. At frequent intervals horses would fall down and it was a matter of no small time and labor to get them on their feet again. Again, all of the teams traveled in a beaten track. If one team was delayed all those behind it were halted. The motor truck, under such conditions, would simply pull through the drifts at the side of the road and pass around the stalled teams. Furthermore, the efficiency of a two-horse truck gradually diminished as the day advanced, while that of the motor truck was unchanged. If it had been desired, the White truck would have kept in service for 24 hours a day, by employing another chauffeur, while the hours of service of the horses were necessarily limited by their physical strength.

### MORE PLANTS IN INDIANA

INDIANAPOLIS, IND., Jan. 19—A number of new companies for the manufacture of automobiles and parts have been organized during the last few days, while there are said to be several others which will have their organization completed within a short time.

One of the most important recent organizations is that of the Standard Automobile Company at Wabash, which has an authorized capitalization of $500,000. A large number of business men are interested in it, the directors being G. J. Kobusch, W. S. McCall, A. R. Walton, W. B. Phelps and F. D. McMahan.

Another new company is the Diamond Automobile Company at South Bend, which has an authorized capitalization of $50,000. The directors of this concern are J. W. Ricketts, Hannah Ricketts and Grace C. Ricketts.

In this city, the Arthur B. Brown Manufacturing Company has been organized to manufacture tires. The company is composed of W. H. Coburn, F. H. Keller and P. A. Meek and has a capitalization of $10,000.

Another new local concern is the Haywood Tire & Equipment Company, which will do a general automobile and tire repair business. The company has an authorized capitalization of $6,000 and the directors are F. H. Rupert, M. Rupert and M. E. Haywood.

Approximately 35,000 automobiles will be made in Indiana this year, of which 20,000 will be made in this city.

### RECENT INCORPORATIONS

**Asbury Park Automobile Company, Asbury Park, N. J.**—Incorporated with a capital stock of $50,000, by D. C. Haven, F. T. Weeden, W. C. Weeden and L. T. Croce, to manufacture automobiles and conduct a garage.

**Wind Shield Manufacturing Company, Newark, N. J.**—Incorporated with a capital stock of $100,000, by C. A. Metzger, R. H. Montgomery and R. M. Owen, to manufacture wind shields, automobile specialties, etc.

**Maurer Garage Company, of Sheboygan, Wis.**—Incorporated with a capitalization of $15,000, by Albert G. Maurer, William Casper and Fred C. Voigt, to conduct a large garage near the Hotel Foeste.

**Lotz Auto Company, Detroit**—Incorporated with a capital stock of $30,000, by J. A. Lotz, George Christianson, George Cooley and others, to manufacture three types of cars and a new rubber tire.

**Alden-Sampson Manufacturing Company, Pittsfield, Mass.**—Incorporated with a capital stock of $300,000, by L. E. Sampson and G. E. Mitchell, to engage in a general automobile business.

**Hoosier Automobile Company, Garrett, Ind.**—Incorporated with a capital stock of $80,000, by J. A. Moore, P. C. Little, J. B. Mager and others.

**The Maurer Garage Co., Sheboygan, Wis.**—Incorporated with a capital stock of $15,000, by Albert G. Maurer, William Casper and Fred C. Voigt, to conduct a garage.

**The Swiss Magneto Company, Madison, Wis.**—Incorporated with a capital stock of $20,000, by Bascom E. Clarke, James L. Clarke and E. F. Parkinson.

**Connecticut Shock Absorber Company, Inc., Meriden, Conn.**—With a capital stock of $110,000. Its purpose is to manufacture automobile devices.

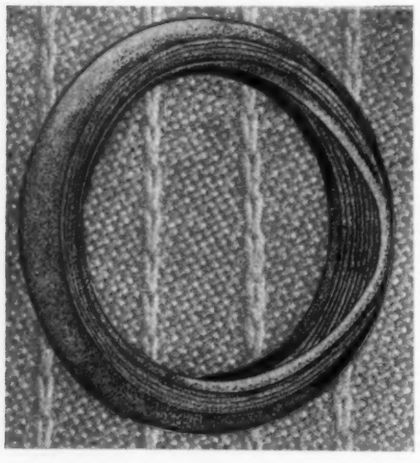
**American Engine & Motor Company Dover, Del.**—Incorporated with a capital stock of $1,000,000.

**Reynolds Motor Car Company, Detroit**—Incorporated with a capital stock of $40,000.

White Three-Ton Gasoline Truck Removing Snow in New York City

# Information for Auto Users

**Bragg Stitched Tires** — Exceptional mileage records are claimed for the tires made by the Seamless Rubber Company, of New Haven, Conn., the construction of which is partially explained by the tire name. In the ordinary tire the layers of fabric are united solely by the rubber with which they are impregnated, being otherwise independent of each other. The Bragg Company claims that this is insufficient and that the layers are sure to work apart, thus weakening the tire and finally giving rise to a blow-out. In the Bragg tire the layers of fabric are united by rows of stitching around the circumference of the tread. The carcass of the tire thus becomes practically a solid piece. Twelve thousand stitches is the average number in a tire. The cut shows a Bragg tire in which the rows of stitching appear as lines, against a background of the stitched fabric, full size.



BRAGG TIRE WITH STITCHED FABRIC

The fabric used in the tire is woven of long fiber Sea Island cotton, impregnated between calendar rolls with the finest "up-river" Para rubber. Fabric so treated will not deteriorate as will fabric upon which an inferior grade of rubber is used. The tread is a rubber compound of especially good wearing qualities, to which is due the record of over 10,000 miles without re-treading. The process employed in curing is that known as the one-cure, wrapped tread process. There is no partial curing; the one-cure process assures a uniformity which cannot be obtained by any other method. No metal whatever comes in contact with the rubber of the tread, so that the life cannot be burned out, as may be the case with a mold-cured tire.

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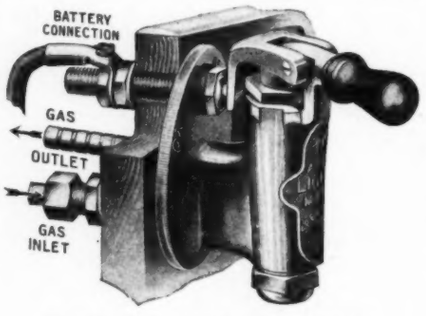
**"Flash" Lamp Lighter**—The greatest objection to acetylene headlights is the necessity of stopping the car and fussing with matches in order to light them. Several attempts have been made, with more or less success, to devise an electrical method of lighting them, and the latest in this line is the "Flash," made by the Motor Specialties Company, of Boston, Mass. The "Flash" is claimed to overcome all the objections cited against former devices of this sort.

The most important part is the dashboard controller, which combines a gas valve and an electric contact, the timing




FLASH LAMP LIGHTER CONNECTIONS

being arranged so that sparks are brought to the burners before the gas appears at them. A single turn of the controller handle to the left closes the primary circuit through a special single-unit coil, inducing hot sparks at the burners. The same movement opens the gas valve. At the end of this movement the sparks are cut out and the lamps left lighted. A turn in the opposite direction extinguishes the lamps. Current is taken from the regular storage battery or from four dry cells. Regulation of gas pressure is accomplished by the needle valve on the tank, which may be any of the standard types.

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**Hagstrom Blowout Patch**—This handy patch, which has found a good market among automobilists, has been improved for the coming season by the addition of a fabric flap, which passes under the bead of the tire. The patch goes on the inside of the show to be repaired, and is shaped to fit closely. On one side it has a sheet metal hook to fit under the bead. The fabric flap, which is the 1910

HAGSTROM BLOWOUT PATCH

improvement, is on the opposite side from the hook. The sleeve is applied directly under the blowout of rim-cut, with the hook on the rim-cut side or the side which appears to be the weaker. The flap assists the hook in holding down the worst blowout. It is claimed that old tires past the stage where re-treading would be profitable will still yield several hundred miles service when repaired with this patch.

The Hagstrom Brothers Manufacturing Company, of Lindsborg, Kan., which makes this patch, has also brought out a new soot-proof spark plug. A factory in Stockholm, Sweden, which for generations has been making the finest porcelain in Europe, will provide the insulators for this plug.

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**The "Siro" Carbureter**—The essential feature of this carbureter is a reciprocal mechanism which controls the inflow of air and gasoline under all positions of the throttle. The "Siro" consists of a U-shaped mixing chamber, at one end of which is a throttle valve and at the other a mechanically-operated auxiliary air valve. These valves are so connected that when the throttle valve is being opened the auxiliary air valve also opens in exact proportion. At the bottom of the "U" is a main air inlet concentric with the float chamber, with the gasoline jet in its center. The jet is controlled by a needle valve interconnected with the throttle and the auxiliary air valve. The movement of the needle valve is affected by a cam, adjustable by a pointer on a dial.

THE SIRO CARBURETER

All the functions of the carbureter are thus controlled mechanically, there being no spring-operated valves. At a definite place in the opening of the throttle the needle valve lifts out of the nozzle to supply more fuel for the excess of inflowing air. This action is accomplished by a piece of glass-hard steel sliding up the surface of an inclined plane or cam, which is provided with an adjustment for advancing or retarding its position. The precise setting is determined once for all on any given motor. The adjustment of the carbureter is not subject to atmospheric or climatic conditions. All working parts are in blind bearings, preventing air leaks, and are made of bronze, fitted to gauges and interchangeable. The maker is the Siro Carbureter Company, Springfield, Mass.

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**"Beats All" Oiled Shirt**—This garment has been placed on the market by the Standard Oiled Clothing Company, of 152d street and Tinton avenue, New York, to replace the rubber and gossamer shirts hitherto worn by automobilists. It is not subject to the action of gasoline or lubricating oil, and neither its appearance nor its durability suffer by contact with them. It is thoroughly waterproof and can be easily folded and stowed away, not being liable to cracking.